INGRAM PRODUCTS, INC.

Visual Alarms

Audible Alarms

Power Supplies

Panel Heaters

Pumps and Accessories

Relays

Hour Meters

Wall Mount

Misc. Components

Established in 1985 to serve the needs of the Industrial Control Industry and Water & Wastewater Industry

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Terms and Conditions

INGRAM PRODUCTS, INC.

One Year Limited Warranty

Ingram Products, Inc. guarantees our components to be free from defects in both material and workmanship for a period of one year after purchase date to the original purchaser. This warranty does not cover any part or components damaged by misuse or modification. In no case shall Ingram Product's liability exceed the original cost of the purchased part. Ingram Products reserves the right to change or modify our parts and components without notice. Ingram Products has no control over the final assembly of its components or parts and no liability shall be assumed or accepted for any damage caused by misapplication, improper installation or damages due to shipping or mishandling.

All warranties are FOB factory only.

Credit

Ingram Products Inc. may extend credit terms of NET 30 DAYS to qualified customers. Credit is limited to the amount of sale and is not a revolving type account. Credit limits are approved on a case-by-case basis. Ingram Products reserves the right to refuse shipping to accounts past due. Credit history is obtained via Dunn & Bradstreet, Inc. This credit information is held in strict confidence and shall not be sold or given to anyone.

Returns & Restocking

Ingram Products reserves the option to repair or replace defective or damaged components. A 40% restocking fee and freight charges will apply to electrical components that are returned with an approved RMA number.

By placing your order you agree to our terms and conditions.

List Price Sheet

VISUAL ALARMS

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Alarm Light, 4W, Red	LX4	11.00	10.29	9.46	8.34	7.38
Alarm Light, 10W, Red	LX10	13.85	13.08	12.31	11.54	10.77
Alarm Light, 10W, (Amber or Green - specify color)	LX10	16.92	16.15	15.38	14.62	13.85
Alarm Light, 15W w/ SS Flasher, Red	LX15F	26.92	26.15	25.38	24.62	23.85
Alarm Light, 15W, w/ SS Flasher, (Amber or Green - specify color)	LX15F	30.00	29.23	28.46	27.69	26.92
Alarm Light, 25W, Red	LX-25	25.32	20.68	20.58	19.71	17.95
Alarm Light, 25W (Amber, Green, Blue, Clear -specify color)	LX-25	33.02	28.37	28.28	27.40	25.65
Alarm Light, 40W, Red, w/ Soild State Flasher	LX-40F	46.02	34.85	33.92	32.43	29.94
Alarm Light, 40W (Amber, Green, Blue, Clear - specify color)	LX-40F	53.71	42.54	41.62	40.12	37.63
Alarm Light, Mini, 15W, Red	MX-15	20.66	14.29	13.77	12.75	11.43
Alarm Light, Mini, 15W, Amber	MX-15	23.74	17.37	16.85	15.83	14.51
Alarm Light, Mini, 25W w/ SS Flasher, Red	MX-25F	41.35	28.46	27.11	25.48	23.42
Alarm Light, Mini, 25W w/ SS Flasher, Amber	MX-25F	44.43	31.54	30.18	28.55	26.49
Beacon, Rotating, 12VDC (Red, Amber, Green - specifiy color)	RB1215D	89.00	84.55	80.32	76.31	70.95
Alarm Light, LED, Sunburst, 120VAC	SB120AC	49.23	45.63	43.71	41.37	37.43
Alarm Light, LED, Sunburst, 120VAC, New	SBN120AC	50.77	47.17	45.25	42.91	38.97
Alarm Light, LED,Sunburst,12/24VDC	SB1224AD	55.38	52.63	49.09	45.38	43.08
Alarm Light, LED, Sunburst, 12/24 VDC or VAC, New	SBN1224AD	56.92	54.17	50.63	46.92	44.62
Strobe, 12VDC, Red	SLRX-123	73.89	71.42	66.92	61.28	57.48
Strobe, 12VDC (Amber, Blue, Green, Clear - specify color)	SLX-123	81.58	79.11	74.62	68.97	65.17
Strobe, 120VAC w/ Screw in Base	S120VAC	29.92	28.03	25.97	23.85	21.88
Kit, Strobe, 120 VAC w/ Screw in Base (Red)	SK120VAC	62.80	58.80	51.77	46.80	45.77
Strobe,120VAC (Amber, Blue, Green, Clear - specify color)	SK120VAC	70.49	66.49	59.46	54.49	53.46
Kit, Strobe, 12 VDC (Red)	SK12VDC	58.74	56.57	48.69	44.09	41.58
Strobe, 12VDC (Amber, Blue, Clear -specify color)	SK12VDC	66.43	64.26	56.38	51.78	50.82
MiniStrobe, 120VAC (Specify color)	MS120A	33.85	32.31	30.77	26.23	25.00

FLASHERS

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Flasher, Solid State, AC, 150W	SSF150W	20.69	14.17	13.34	12.72	11.98
Flasher, Solid State, DC, 12 to 24 Volt	SSF1224D	20.69	14.17	13.34	12.72	11.98

AUDIBLE ALARMS

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Sounder, 115VAC, (Red, Gray)	AH115A8R, AH115A8G	81.83	77.69	71.77	64.92	63.85
Sounder, 12 or 24 VDC, (Red, Gray)	AH1224D8R, AH1224D8G	81.83	77.69	71.77	64.92	63.85
Piezo, Siren, 12VDC	PS12D	21.86	19.68	17.88	16.40	14.14
Piezo, Warble, 120VAC	PW120A	25.23	21.11	19.75	18.12	16.49
Piezo, Warble, 24VDC	PW24D	21.86	19.68	17.88	16.40	14.14
Piezo, Warble, 12VDC	PW12D	21.86	19.68	17.88	16.40	14.14
Piezo, Medium Loud Beep, 120VAC	PB120AMB-X	25.23	21.11	19.75	18.12	16.49
Piezo, Extra Loud Continuous, 120VAC	PB120AXC-X	25.23	21.11	19.75	18.12	16.49
Piezo, Medium Loud Continuous, 120VAC	PB120AMC-X	25.23	21.11	19.75	18.12	16.49
Piezo, Medium Loud Continuous, 5-30V AC/DC	PB530ADMC-X	24.45	22.09	20.15	18.58	16.15
Piezo, Extra Loud, 3-30VDC	PB330DXCX-X	21.86	19.68	17.88	16.40	14.14
Piezo, Medium Loud Warble, 5-24V AC/DC	PB524ADMW-X	24.45	22.09	20.15	18.58	16.15

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AUDIBLE ALARMS

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Piezo, Chime, 5-25VDC	PB525DCH-X	21.86	19.68	17.88	16.40	14.14
Piezo, Ultra Loud Staccato, 6-28VDC	PB628DUT-X	21.86	19.68	17.88	16.40	14.14
Piezo, Ultra Loud Siren, 6-28VDC	PB628DUS-X	21.86	19.68	17.88	16.40	14.14
Piezo, Ultra Loud Warble, 6-28VDC	PB628DUW-X	21.86	19.68	17.88	16.40	14.14
Piezo, Ultra Loud Warble or Continuous, 5-15VDC	PB515DUW/UC-X	21.86	19.68	17.88	16.40	14.14
Piezo, Ultra Loud Warble or Continuous, 6-18VDC	PB628DUW/UC-X	21.86	19.68	17.88	16.40	14.14
Piezo, Fast Beep, 6-24V AC/DC	PB624ADFB-X	24.45	22.09	20.15	18.58	16.15
Piezo, Fast Beep, 120VAC	PB120AFB-X	25.23	21.11	19.75	18.12	16.49
Piezo, Fast Siren, 120VAC	PB120AFS-X	25.23	21.11	19.75	18.12	16.49
Piezo, Fast Siren, 6-30 AC/DC	PB630ADFS-X	24.45	22.09	20.15	18.58	16.15
Sounder31,12-24VDC w/ Beacon	AH03127-BS	67.69	65.32	60.89	55.80	50.09
Sounder31, 12-24VDC	AH03127-S	61.54	59.46	54.55	49.22	47.35
Adapter, Silence Module	SMADP	3.00	2.91	2.40	2.20	2.00
Silence Module, 12VDC, 24VDC or 120VAC	SM12D, SM24D, SM120A	17.46	17.78	17.46	16.51	15.97

TEMP. CONTROLS, HOUR METERS, COUNTERS, BATTERIES & BACKUPS, TRANSFORMERS

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Battery Back Up w/ Charger, 12VDC, 8AH	BB-1208AH	103.05	97.17	93.34	91.26	86.94
Battery Back Up w/ Charger, 12VDC, 5 AH	BB-1205AH	77.92	73.02	69.80	68.06	64.43
Battery, 12VDC, 8 Amp Hour	B1208AH	62.68	59.62	57.65	56.58	54.32
Battery, 12VDC, 5 Amp Hour	B1205AH	38.31	36.17	34.78	34.05	32.46
Charger, Battery, 12VDC	FLC-2207	36.06	33.52	31.85	30.92	29.06
Charger, Battery, 24VDC	FLC-2210	43.26	40.22	38.22	37.11	34.86
Mounting Bracket, 5 Amp Hour Battery	MB1205AH	19.86	18.98	18.03	17.49	17.03
Heater, Panel, 15W, 30W, 35W, 50W	AHC-15, 30, 35, 50	50.82	49.54	43.95	40.12	37.58
Heater, Mini Space, 15W	MHS-15	25.74	23.58	21.43	20.34	19.57
Hour Meter, Rectangular Face w/mounting holes, 12-48V DC/AC	HRM1248ADRRSP	35.51	30.18	25.66	21.82	18.54
Hour Meter, Rectangular Face w/mounting holes, 90 to 230VAC	HRM90230ACRRSP	35.51	30.18	25.66	21.82	18.54
Hour Meter, Round Face, 12-48V DC/AC	HRM1248ADRSS	35.51	30.18	25.66	21.82	18.54
Hour Meter, Round Face, 90-230VAC	HRM90230ACRSS	35.51	30.18	25.66	21.82	18.54
Hour Meter, Rectangular, 12-48V DC/AC	HRM1248ADRRP	35.51	30.18	25.66	21.82	18.54
Hour Meter, Rectangular Face, 90 to 230VAC	HRM90230ACRRP	35.51	30.18	25.66	21.82	18.54
Thermostat, Cooling, 120/250 VAC	CTS	25.23	21.11	19.75	18.12	16.49
Thermostat, Heating, 120/250 VAC	HTS	25.23	21.11	19.75	18.12	16.49
Counter, Hand Held	HHC4	12.89	11.35	9.75	9.31	8.91
Counter w/ Actuator Arm	MC01	25.98	20.49	16.89	13.40	11.65
Transformer, Class 2, UL	50313OF-12	25.38	24.62	23.85	23.08	22.31

IS RELAYS, TIMER RELAYS, PROGRAMMABLE RELAYS

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Relay, Latching, 12V, 10K	ISRL 12-10K	148.38	137.80	127.49	123.57	121.18
Relay, Latching, 12V. 100K	ISRL 12-100K	148.38	137.80	127.49	123.57	121.18
Relay, Latching, 24V, 10K	ISRL 24-10K	148.38	137.80	127.49	123.57	121.18
Relay, Latching, 24V, 100K	ISRL 24-100K	148.38	137.80	127.49	123.57	121.18
Relay, Dual Channel, 12V, 10K	ISR2 12-10K	180.40	169.48	154.54	142.11	132.40
Relay, Dual Channel, 12V, 100K	ISR2 12-100K	180.40	169.48	154.54	142.11	132.40
Relay, Dual Channel, 24V, 10K	ISR2 24-10K	180.40	169.48	154.54	142.11	132.40

IS RELAYS, TIMER RELAYS, PROGRAMMABLE RELAYS

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Relay, Dual Channel, 24V, 100K	ISR2 24-100K	180.40	169.48	154.54	142.11	132.40
Relay, 4 Channel, Multiple Configuration	ISR4-R	576.92	541.78	491.46	451.46	433.38
Relay, Latching, 4 Channel, Multiple Configuration	ISR4-L	576.92	541.78	491.46	451.46	433.38
Timer, Multi-range, 24-240V AC/DC	H3B-RC	38.26	35.71	33.15	30.62	26.54
Timer, Multi-function Analog, Octal Base, 24-240V AC/DC	H3C-R	49.66	46.35	43.05	39.74	34.97
Timer, Multi-function Analog, 11 pin base, 24 to 240V, AC/DC	H3C-R11	55.18	51.51	47.83	44.15	38.85
Timer, Multi-function, Digital, 12-48V AC/DC	H5CLR-11-1248V_AC/DC	79.42	74.12	68.83	63.54	55.91
Timer, Multi-function, Digital, 100 to 240V, AC/DC	H5CLR-11-100-240_AC/DC	79.42	74.12	68.83	63.54	55.91
Timer, Programmable, Weekly, 12 to 48V AC/DC	APT-9S-1248V_AC/DC	188.68	174.09	159.51	144.92	141.32
Timer, Programmable, Weekly, 100 to 240V, AC/DC	APT-9S-100-240V_AC/DC	188.68	174.09	159.51	144.92	141.32
Mounting Frame, Flush, For H Series Timer Relays	Y-50	5.38	4.95	4.52	4.09	3.66
Mounting Frame, Flush, For APT-9S Programmable Timer	Y-70	7.54	6.94	6.34	5.74	5.14
Socket, Relay, Octal	10FF-2Z-C3	6.40	6.40	6.40	6.40	6.40
Socket, Relay, 11 Pin	10FF-3Z-C3	6.92	6.92	6.92	6.92	6.92
Frame, Flush Mount, for H Series Timer Relays	Y-50	5.38	4.95	4.52	4.09	3.66
Frame, Flush Mount, for APT-9S Timer Relays	Y-70	7.54	6.94	6.34	5.74	5.14

LIQUID SYSTEM CONTROLS

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Bubbler Air Supply - Contintinuous Run	BASCR30	424.31	400.37	376.43	352.49	328.55
TUF Pump II, Pressure/Vacuum Pump, 120VAC	NPV20P18M120A	217.89	203.75	189.63	175.49	161.37
Air Compressor, 15 Ft. Max	HR10WB3	179.15	145.92	138.26	130.91	129.38
Mounting Bracket, Compressor, HR10WB3	HRMTBKT	16.00	14.75	13.88	13.17	11.86
Mounting Bracket, TUF Pump, PV20P18M120A	PV20P18M120AMTBRK	27.65	23.85	22.92	20.54	19.23
Relay, Moisture Sensing, Multi-funcion (MSR) 24VAC	MSR1P24A	55.91	54.08	49.62	44.77	43.08
Relay, Moisture Sensing, Multi-function (MSR) 120VAC	MSR1P120A	55.91	54.08	49.62	44.77	43.08
Relay, Liquid Level Control, Multi-function (LLC) 24VAC	LLC2P24A	55.91	54.08	49.62	44.77	43.08
Relay, Liquid Level Control, Multi-function (LLC) 120VAC	LLC2P120A	55.91	54.08	49.62	44.77	43.08
Flowmeter, F100, 1/2", 2.5 to 20 LPM, Silicon O-ring	F100-DN15A-S	282.03	261.89	241.74	241.74	213.25
Flowmeter, F100, 1/2", 5 to 40 LPM, Silicon O-ring	F100-DN15B-S	282.03	261.89	241.74	241.74	213.25
Flowmeter, F100, 1/2", 2.5 to 20 LPM, Viton O-ring	F100-DN15A-V	457.03	424.38	391.74	391.74	363.25
Flowmeter, F100, 1/2", 5 to 40 LPM, Viton O-ring	F100-DN15B-V	457.03	424.38	391.74	391.74	363.25
Flowmeter, F100, 3/4", 3 to 24 LPM, Silicon O-ring	F100-DN20A-S	308.28	286.26	264.25	264.25	243.25
Flowmeter, F100, 3/4", 8 to 64 LPM, Silicon O-ring	F100-DN20B-S	308.28	286.26	264.25	264.25	243.25
Flowmeter, F100, 3/4", 3 to 24 LPM, Viton O-ring	F100-DN20A-V	483.28	448.75	414.25	414.25	393.25
Flowmeter, F100, 3/4", 8 to 64 LPM, Viton O-ring	F100-DN20B-V	483.28	448.75	414.25	414.25	393.25
Flowmeter, F100, 1", 7 to 56 LPM, Silicon O-ring	F100-DN25A-S	327.52	304.14	280.74	280.74	258.25
Flowmeter, F100, 1", 13 to 104 LPM, Silicon O-ring	F100-DN25B-S	327.52	304.14	280.74	280.74	258.25
Flowmeter, F100, 1", 7 to 56 LPM, Viton O-ring	F100-DN25A-V	502.52	466.63	430.74	430.74	408.25
Flowmeter, F100, 1", 13 to 104 LPM, Viton O-ring	F100-DN25B-V	502.52	466.63	430.74	430.74	408.25
Flowmeter, F300, 1/2", 2.5 to 20 LPM, Silicon O-ring	F300-DN15A-S	387.03	359.38	331.74	331.74	303.25
Flowmeter, F300, 1/2", 5 to 40 LPM, Silicon O-ring	F300-DN15B-S	387.03	359.38	331.74	331.74	303.25
Flowmeter, F300, 1/2", 2.5 to 20 LPM, Viton O-ring	F300-DN15A-V	649.52	603.14	556.74	556.74	528.25
Flowmeter, F300, 1/2", 5 to 40 LPM, Viton O-ring	F300-DN15B-V	649.52	603.14	556.74	556.74	528.25
Flowmeter, F300, 3/4", 3 to 24 LPM, Silicon O-ring	F300-DN20A-S	413.28	383.75	354.25	354.25	333.25
Flowmeter, F300, 3/4", 8 to 64 LPM, Silicon O-ring	F300-DN20B-S	413.28	383.75	354.25	354.25	333.25
Flowmeter, F300, 3/4", 3 to 24 LPM, Viton O-ring	F300-DN20A-V	675.78	627.51	579.25	579.25	558.25
Flowmeter, F300, 3/4", 8 to 64 LPM, Viton O-ring	F300-DN20B-V	675.78	627.51	579.25	579.25	558.25

LIQUID SYSTEM CONTROLS

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Flowmeter, F300, 1", 7 to 56 LPM, Silicon O-ring	F300-DN25A-S	432.52	401.63	370.74	370.74	348.25
Flowmeter, F300, 1", 13 to 104 LPM, Silicon O-ring	F300-DN25B-S	432.52	401.63	370.74	370.74	348.25
Flowmeter, F300, 1", 7 to 56 LPM, Viton O-ring	F300-DN25A-V	695.03	645.38	595.74	595.74	573.25
Flowmeter, F300, 1", 13 to 104 LPM, Viton O-ring	F300-DN25B-V	695.03	645.38	595.74	595.74	573.25

ACCESSORIES

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Bubbler Kit, Level Control, 0 to 10 Foot	BK-10	46.83	38.69	36.35	34.35	33.86
Bubbler Kit, Level Control, 0 to 20 Ft.	BK-20	46.83	38.69	36.35	34.35	33.86
Bubbler Kit, Level Control, 0 to 30 Foot	BK-30	46.83	38.69	36.35	34.35	33.86
Rebuild Kit, Standard, TUF Pump	PV20PKSTD	32.12	26.31	24.97	23.62	23.23
Rebuild Kit, Deluxe, TUF Pump	PV20PKDLX	41.91	34.17	32.46	30.77	30.26
Capacitor, TUF Pump	C4MFD250V	10.77	8.82	8.38	7.95	7.85
Check Valve, Back	AP19CV0012NL	7.32	5.45	4.95	4.06	3.74
Filter, Air Discharge H10WB3	AP19FV0012PIL	9.43	7.18	6.60	6.29	5.98
Filter, Air Intake, HR10WB3	HRIF-1	2.00	1.83	1.52	1.15	1.15
Orifice, Fixed	IM-.016	7.66	5.88	5.15	4.72	4.29
Lamp, LED, Sunlight Visible, 12V, Red (for LX4)	LSLED-006R12VAD	12.31	10.62	8.46	6.15	5.77
Lamp, LED, Sunlight Visible, 12V, Amber (for LX4)	LSLED-006A12VAD	12.31	10.62	8.46	6.15	5.77
Lamp, LED, Sunlight Visible, 12V, Green (for LX4)	LSLED-006G12VAD	12.31	10.62	8.46	6.15	5.77
Lamp, LED, Sunlight Visible, 24V, Red (for LX4)	LSLED-006R24VAD	12.31	10.62	8.46	6.15	5.77
Lamp, LED, Sunlight Visible, 24V, Amber (for LX4)	LSLED-006A24VAD	12.31	10.62	8.46	6.15	5.77
Lamp, LED, Sunlight Visible, 24V, Green (for LX4)	LSLED-006G24VAD	12.31	10.62	8.46	6.15	5.77
Lamp, LED, Sunlight Visible, 120 VAC, Red (for LX4)	LSLED-006R120VAC	12.31	10.62	8.46	6.15	5.77
Lamp, LED, Sunlight Visible, 120 VAC, Amber (for LX4)	LSLED-006A120VAC	12.31	10.62	8.46	6.15	5.77
Lamp, LED, Sunlight Visible, 120 VAC, Green (for LX4)	LSLED-006G120VAC	12.31	10.62	8.46	6.15	5.77
Bulb, E26 Base, 25 LED Matrix, 12 Volt, Red (for MX)	LS3463E2625012DR	61.97	58.46	52.54	45.20	38.08
Bulb, E26 Base, 25 LED Matrix, 12 Volt, Amber (for MX)	LS3463E2625012DA	61.97	58.46	52.54	45.20	38.08
Bulb, E26 Base, 25 LED Matrix, 24 Volt, Red (for MX)	LS3463E2625024DR	61.97	58.46	52.54	45.20	38.08
Bulb, E26 Base, 25 LED Matrix, 24 Volt, Amber (for MX)	LS3463E2625024DA	61.97	58.46	52.54	45.20	38.08
Bulb, E26 Base, 25 LED Matrix, 120 Volt, Red (for MX)	LS3463E2625120AR	61.97	58.46	52.54	45.20	38.08
Bulb, E26 Base, 25 LED Matrix, 120 Volt, Amber (for MX)	LS3463E2625120AA	61.97	58.46	52.54	45.20	38.08
Bulb, E26 Base,31 LED Matrix, 12 Volt, Red (for LX 25, 40F))	LS3483E2631012DR	63.85	61.31	54.08	46.62	40.00
Bulb, E26 Base, 31 LED Matrix, 12 Volt, Amber (for LX25, 40F)	LS3483E2631012DA	63.85	61.31	54.08	46.62	40.00
Bulb, E26 Base, 31 LED Matrix, 24 Volt, Red (for LX25, 40F)	LS3483E2631024DR	63.85	61.31	54.08	46.62	40.00
Bulb, E26 Base, 31 LED Matrix, 24 Volt, Amber (for LX25, 40F)	LS3483E2631024DA	63.85	61.31	54.08	46.62	40.00
Bulb, E26 Base, 31 LED Matrix, 120 Volt, Red (for LX25, 40F)	LS3483E2631120AR	63.85	61.31	54.08	46.62	40.00
Bulb, E26 Base, 31 LED Matrix, 120 Volt, Amber (for LX25, 40F)	LS3483E2631120AA	63.85	61.31	54.08	46.62	40.00
Bulb, E26 Base, 31 LED Matrix, 120 Volt, White (for LX25, 40F)	LS3483E2631120AW	65.38	62.69	55.77	48.31	41.69
Bulb, Incandescent, 15 Watt, 12V, S-15, Clear	LSA15C15W12V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 25 Watt, 12 Volt, S-15, Clear (for LX25)	LSA15C25W12V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 40 Watt, 12 Volt, S-15, Clear (for LX40-F)	LSA15C40W12V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 15 Watt, 24 Volt, S-15, Clear	LSA15C15W24V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 25 Watt, 24 Volt, S-15, Clear (for LX25)	LSA15C25W24V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 40 Watts, 24V, S-15, Clear (for LX40)	LSA15C40W24V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 10 Watt, 12 Volts, S-11, Clear	LSA11C10W12V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 15 Watt, 12 Volt, S-11, Clear (for MX15)	LSA11C15W12V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 25 Watt, 12 Volt, S-11, Clear (for MX25F)	LSA11C25W12V	5.31	5.15	5.08	5.00	4.92

ACCESSORIES

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Bulb, Incandescent, 10 Watt, 24 Volt, S-11, Clear	LSA11C10W24V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 15 Watt, 24 Volt, S-11, Clear (for MX15)	LSA11C15W24V	5.31	5.15	5.08	5.00	4.92
Bulb, Incandescent, 25 Watt, 24 Volt, S-11, Clear (for MX25F)	LSA11C25W24V	5.31	5.15	5.08	5.00	4.92

OEM net price DIN RAIL MOUNT POWER SUPPLY

Description	Model Number	1-4	5-9	10-19	20-49	50-99
Power Supply, 5VDC @ 1 Amps	DRA05-05	25.87	25.04	24.21	23.38	22.66
Power Supply, 12VDC @ .42 Amps	DRA05-12	25.87	25.04	24.21	23.38	22.66
Power Supply, 15VDC @ 0.34 Amps	PSD05-15	25.87	25.04	24.21	23.38	22.66
Power Supply, 24VDC @ .21 Amps	DRA05-24	25.87	25.04	24.21	23.38	22.66
Power Supply, 5 VDC @ 2 Amps	DRA10-05	31.23	30.22	29.19	28.16	27.28
Power Supply, 12VDC @ 0 .83 Amps	DRA10-12	31.23	30.22	29.19	28.16	27.28
Power Supply, 15VDC @ 0 .67 Amps	PSD10-15	31.23	30.22	29.19	28.16	27.28
Power Supply, 5VDC @ 3.6 Amps	DRA18-05	46.48	44.90	43.32	41.74	40.40
Power Supply, 12VDC @ 1.5 Amps	DRA18-12	46.48	44.90	43.32	41.74	40.40
Power Supply, 15VDC @ 1.2 Amps	DRA18-15	46.48	44.90	43.32	41.74	40.40
Power Supply, 24VDC @ .75 Amps	DRA18-24	46.48	44.90	43.32	41.74	40.40
Power Supply, 5VDC @ 6 Amps	DRA30-05	64.57	58.54	53.52	49.85	47.09
Power Supply, 12VDC @ 2.5 Amps	DRA30-12	64.57	58.54	53.52	49.85	47.09
Power Supply, 24VDC @ 1.25 Amps	DRA30-24	64.57	58.54	53.52	49.85	47.09
Power Supply, 48VDC @ 0.625 Amps	DRA30-48	64.57	58.54	53.52	49.85	47.09
Power Supply, 5VDC @ 10 Amps	DRA60-05	75.00	73.00	66.80	62.12	58.68
Power Supply, 12VDC @ 5 Amps	DRA60-12	75.00	73.00	66.80	62.12	58.68
Power Supply, 24VDC @ 2.5 Amps	DRA60-24	75.00	73.00	66.80	62.12	58.68
Power Supply, 48VDC @ 1.25 Amps	DRA60-48	75.00	73.00	66.80	62.12	58.68
Power Supply, 12VDC @ 10 Amps	DRA120-12	124.00	120.00	116.19	112.47	108.87
Power Supply, 24VDC @ 5 Amps	DRA120-24	124.00	120.00	116.19	112.47	108.87
Power Supply, 24VDC @ 10 Amps	DRA240-24	172.00	166.00	158.40	153.10	147.10

Price and specifications subject to change without notice. All prices F.O.B. Jacksonville, Florida excluding tax and packaging. Terms are Net 30 with approved credit. Most items shipped bulk. Volume pricing, blanket prices and OEM DISCOUNTS available.

4 Watt Alarm Light

Part No. LX4

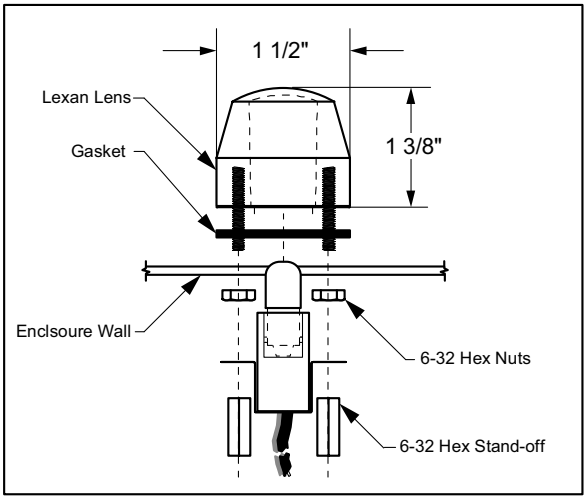
The Ingram LX4 is a NEMA and UL Type 3, 3R, 4, 4X, 12 and 13 low cost, low profile, alarm light or pilot light suitable for heavy duty applications inside and outdoors. The lens is molded from shatter resistant GE Lexan. This alarm light is particularly useful on small panels.

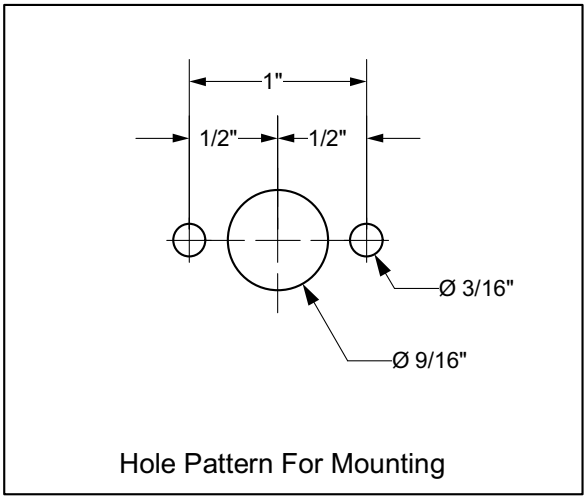
Features

- UL Recognized
- Low profile
- Easy to install
- Tamper Resistant
- Shatter resistant GE Lexan globe
- Can be used as a pilot light
- Available in red, amber and green
- Other colors available by special order
- Choose from 12V, 24V or 130V

Technical Specifications

- Model: LX4 specify color when ordering
- UL Recognized E121431 Type 3, 3R, 4, 4X, 12, 13
- Voltage: 130 VAC Standard
  24 VAC/DC available
  12 VAC/DC available
- Current Draw: 130 VAC = 33 mA
  24VAC/DC = 167 mA
  12VAC/DC = 333 mA
- Must specify voltage when ordering





Hole Pattern For Mounting

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Sunlight Visible LED Lamp

Part No. - LSLED-006 Series - Refer to Key for Specific Part Number

Ingram has a large variety of AC and DC LED bulbs for your alarm light needs. This series will fit in our LX4 alarm. The LED package fits all 9mm, T3-1/4 base sockets. For applications where low power, sunlight visible lighting is required.

Features

- Daylight visible
- Fits 9mm (T3-1/4) socket
- Great for low voltage warning lights
- Durable, long life
- Available in red, green and amber
- Much greater resistance to shock and vibration than conventional filament bulbs.

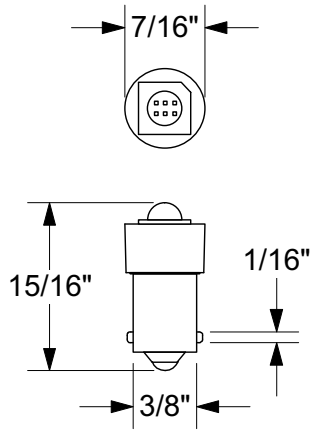
Applications

- Panel mount pilot lights
- Indicator lights for instrumentation

Technical Specifications

- Operating voltage: 12V & 24V AC or DC, 120VAC*
- Current draw: 30mA @ 12V
  30mA @ 24V
  4mA @ 120V
- Operation Life: 50,000 hrs
- Contact Polarity: Bipolar

* Be aware that due to power dissipation constraints the 120VAC version is not as bright.



Dimensions

LSLED-006zxxxxxx

COLOR (z)
R=red
A=amber
G=green

VOLTAGE (x)
12VAD=12VDC/VAC
24VAD=24VDC/VAC
120VAC=120VAC

Example: Red LED lamp, 24 VDC or 24 VAC would be LSLED-006R24VAD.

Part Number Ordering Key

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10 Watt Alarm Light

Part No. LX10

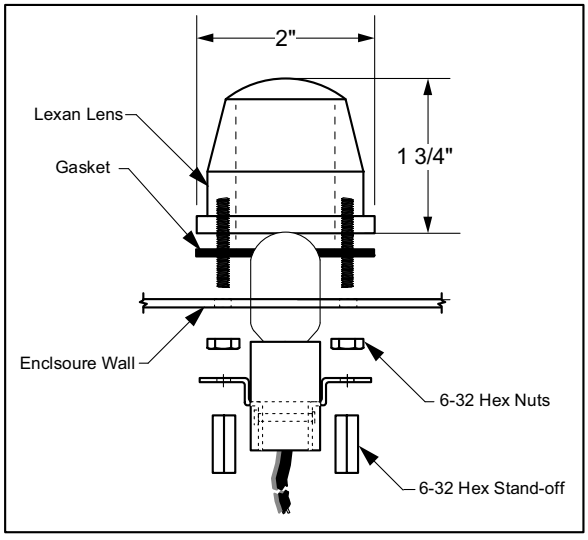
The Ingram LX10 is a NEMA and UL Type 3, 3R, 4, 4X, 12 and 13 low cost, low profile, panel mount alarm light suitable for heavy duty applications inside and outdoors. The lens is molded from shatter resistant GE Lexan. This alarm light is particularly useful on small panels.

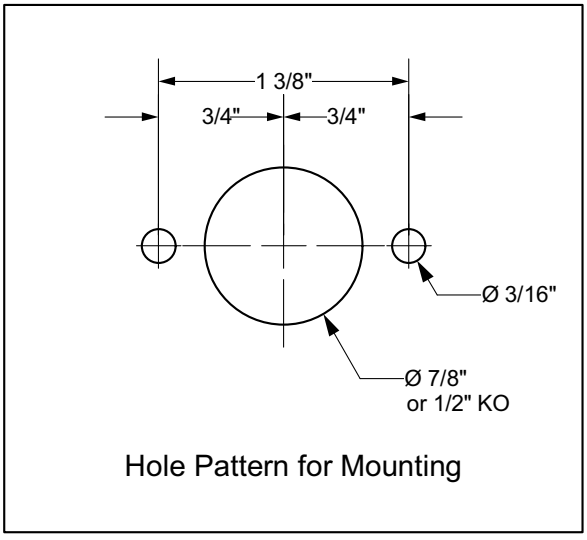
Features

- UL Recognized
- Low profile
- Easy to install
- Tamper Resistant
- Shatter resistant GE Lexan globe
- Can be used as a pilot light
- Available in red, amber, and green
- Other colors available by special order
- Choose from 12V, 24V or 130V

Technical Specifications

- Model: LX10 specify color when ordering
- UL Recognized: Type 3, 3R,4, 4X, 12, 13
- Voltage: 130 VAC, 10 Watts Standard
  24 VAC/DC, 7 Watts available
  12 VAC/DC, 7 Watts available
- Current Draw: 130VAC = .077 mA
  24 VAC/DC = 420 mA
  12 VAC/DC = 830 mA
- Must specify voltage when ordering





Hole Pattern for Mounting

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Flashing 15 Watt Alarm Light

Part No. LX15F

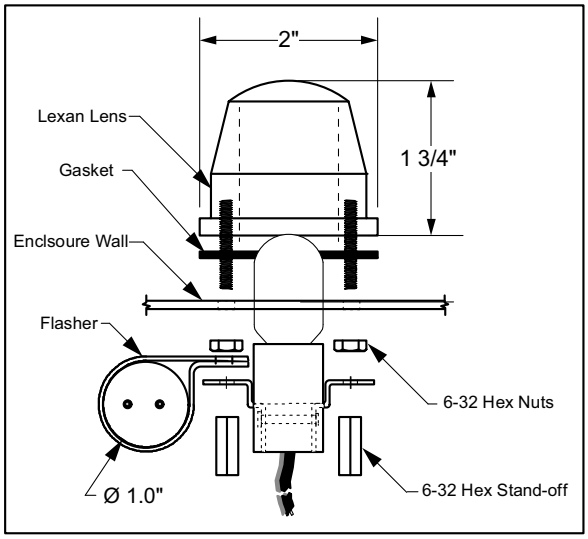
The Ingram LX15F is a NEMA and UL Type 3, 3R, 4, 4X, 12 and 13 low cost, low profile, flashing panel mount alarm light suitable for heavy duty applications inside and outdoors. The lens is molded from shatter resistant GE Lexan. This alarm light is particularly useful on small panels.

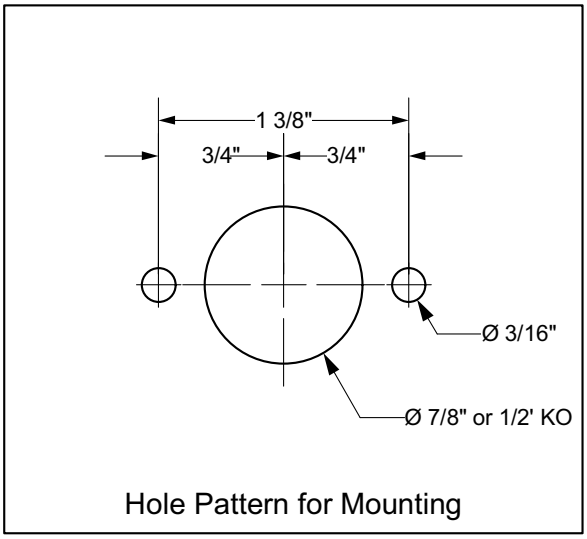
Features

- UL Recognized
- Low profile
- Easy to install
- Tamper Resistant
- Shatter resistant GE Lexan globe
- Supplied with 15W bulb and Solid State Flasher (part no. SSF150W)
- Can be used as a pilot light
- Available in red, amber and green
- Other colors available by special order

Technical Specifications

- Model: LX15FA specifiy color when ordering
- Flashes Per Minuet: 75FPM
- UL Recognized: Type 3, 3R, 4, 4X, 12, 13
- Voltage: 130 VAC Standard
- Current Draw: 130VAC = 125 mA
- Must be used with Ingram's solid state flasher - Part no. SSF150W





Hole Pattern for Mounting

NOTE: The LX15F alarm light must be used with Ingram's SSF150W solid state flasher in order to comply with UL requirements.

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Alarm Light

Part No.: LX25

The Ingram LX25 is a UL 3, 3R, 4, 4X, 12, 13 low cost alarm light suitable for heavy duty applications inside and outdoors. The lens is molded from tough shatter resistant GE Lexan. This tamper resistant light is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

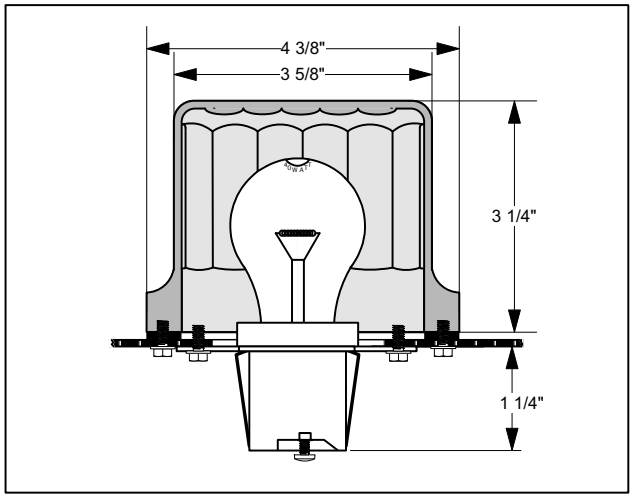
Features

- UL Recognized for use with UL NEMA Type 3, 3R, 4, 4X, 12 and 13 enclosures (E121431)
- Lens molded from GE Lexan that is shatter resistant and UV stabilized
- Low profile, top mounted gives 360 degree visibility
- Hose down proof
- Available in 5 colors: Red, Blue, Green, Amber and Clear

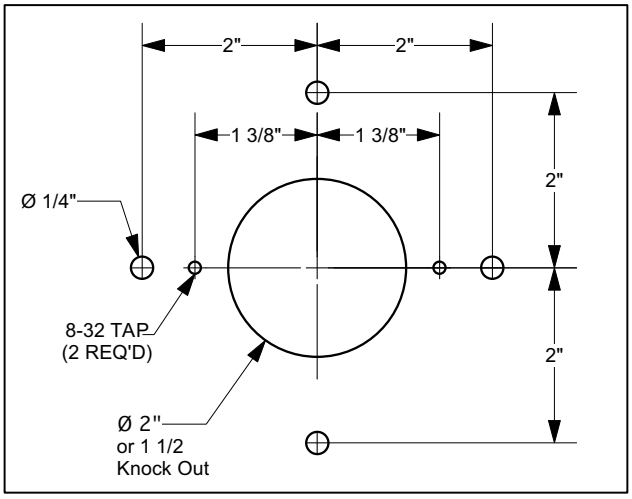
Technical Specifications

- Voltage: 12V, 24V AC/DC, 120VAC
- Current Draw: 120VAC 0.21 Amps max.
  12V AC/DC 2.1 Amps max.
  24V AC/DC 1.1 Amps max.

12 and 24 Volt 25 watt bulbs are available for special order. Supplied with 25 watt, 120V bulb.

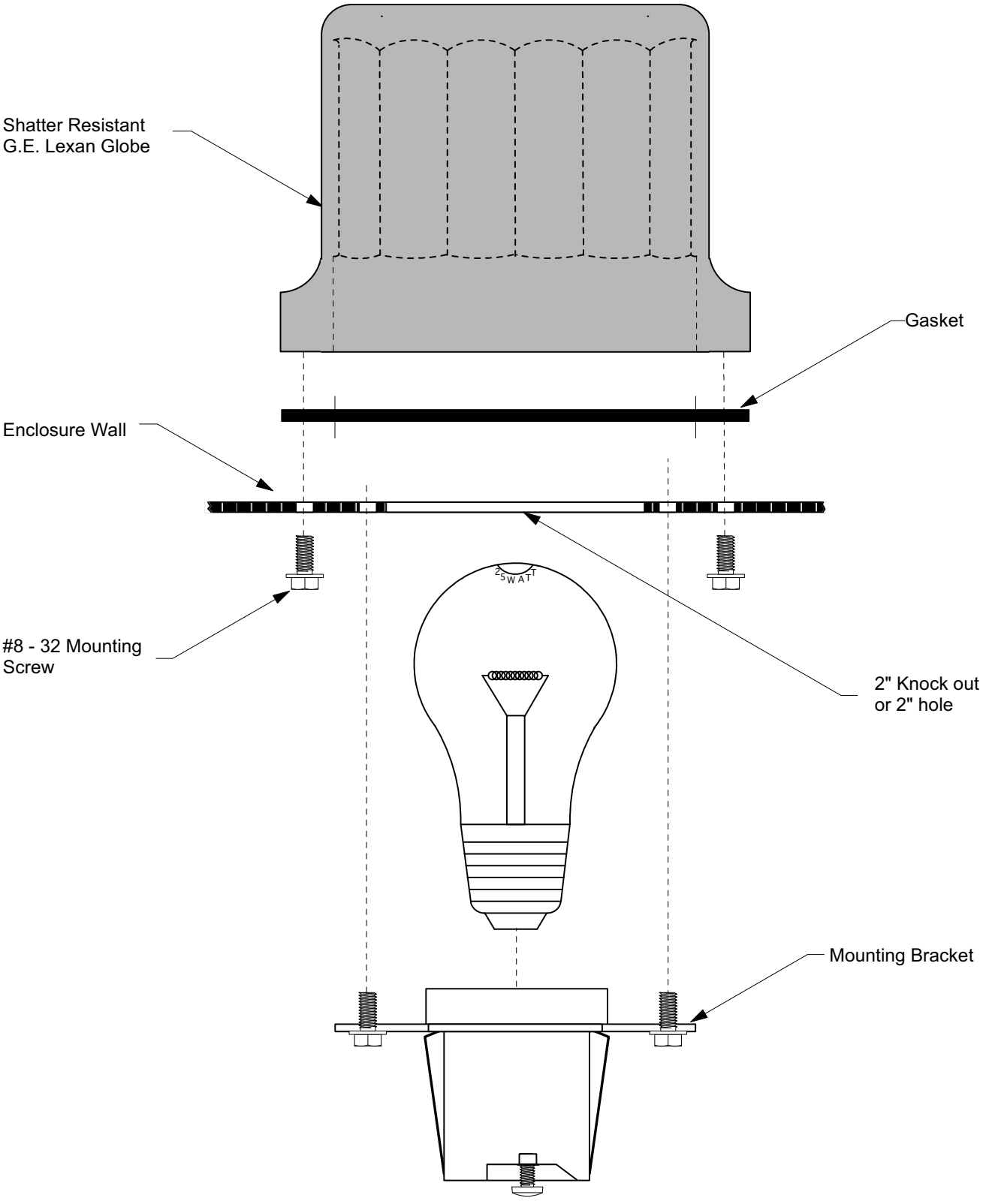


Cut-Away View



Hole Pattern For Mounting

8725 Youngerman Court, Ste 206, Jacksonville, FL 32244 ■ 888-875-2221 ph (904)733-2230 fax ■ Website:www.ingramproducts.com ■ e-mail: info@ingramproducts.com



LX25 Assembly

Flashing Alarm Light

Part No.: LX40F

The Ingram LX40F is a UL 3, 3R, 4, 4X, 12, 13 low cost flashing alarm light suitable for heavy duty applications inside and outdoors. The lens is molded from tough shatter resistant GE Lexan. This tamper resistant light is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

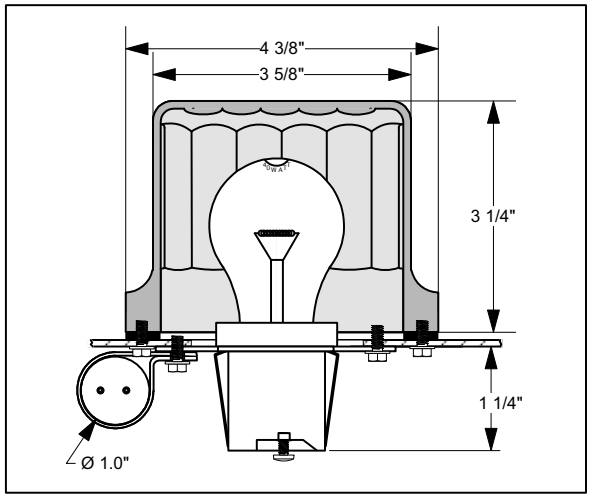
Features

- UL Recognized for use with UL NEMA Type 3, 3R, 4, 4X, 12 and 13 enclosures (E121431)
- Lens molded from GE Lexan that is shatter resistant and UV stabilized
- Low profile, top mounted gives 360 degree visibility
- Hose down proof
- Available in 5 colors: Red, Blue, Green, Amber and Clear

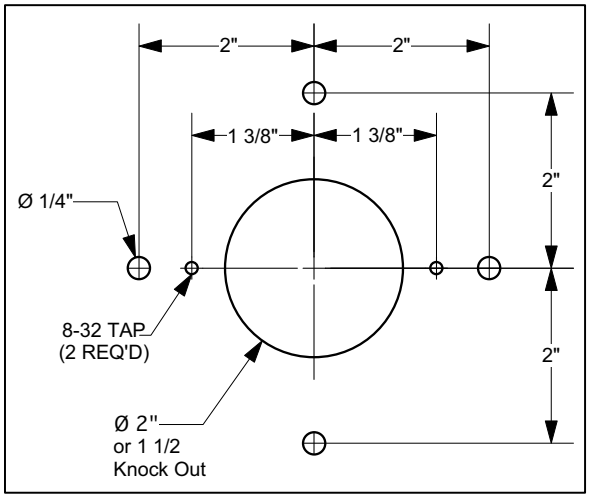
Technical Specifications

- Voltage: 130VAC
- Current Draw: 0.34 Amps max.
- 12 and 24 Volt available for special order
- Supplied with 40 watt bulb
  Supplied with Ingram's SSF150W solid state flasher

*The LX40F must be used with Ingram's SSF150W flasher in order to comply with UL requirements.



Cut-Away View



Hole Pattern For Mounting

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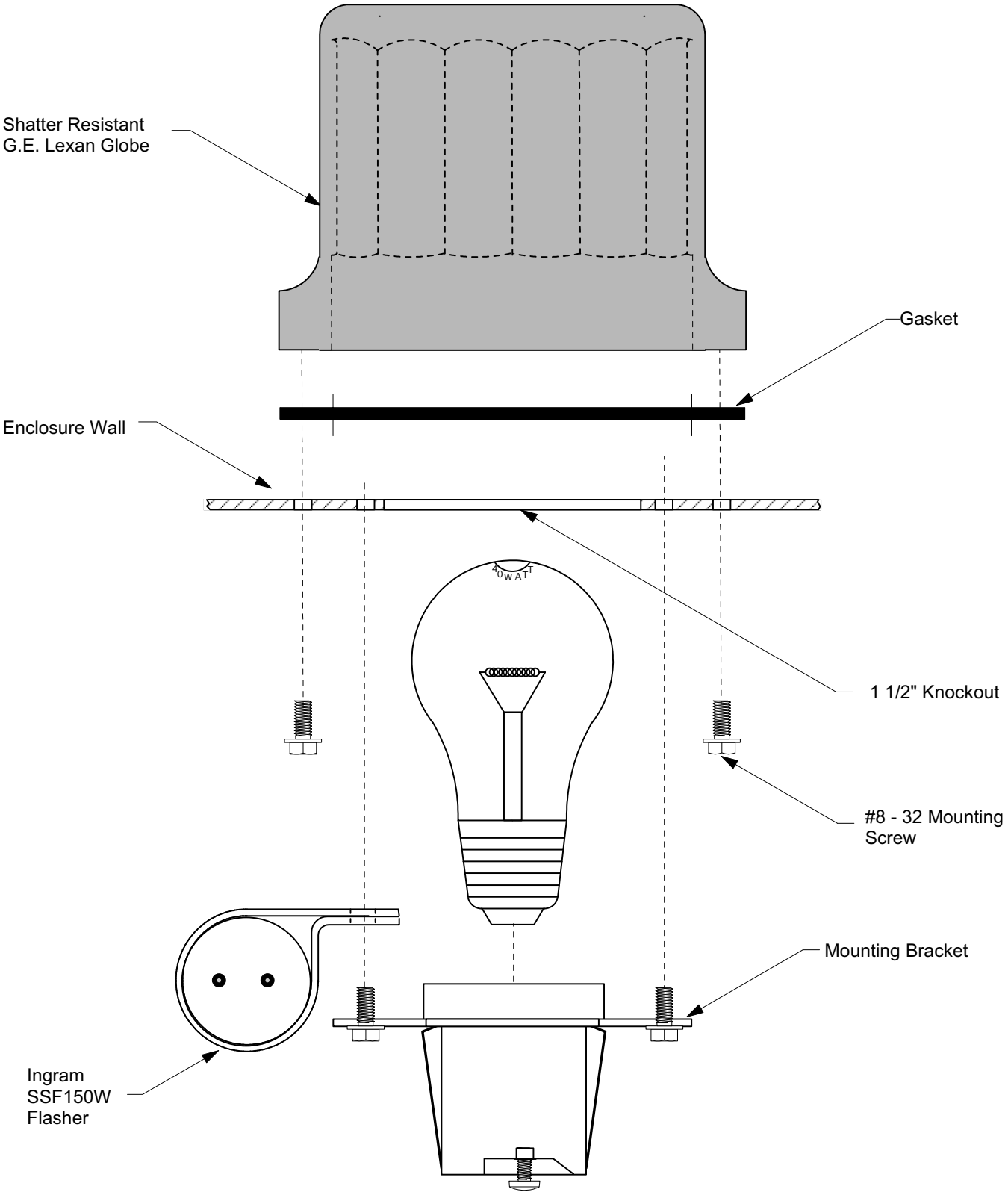


LX40F Assembly

12 and 24 Volt Incandescent Bulbs

Part No. - LSA15C Series - Refer to Key for Specific Part Number

Ingram has a large variety of low voltage tungsten filament incandescent bulbs for your alarm light needs. This series will fit in our LX25 and LX40F visual alarms. These screw-in type bulbs all fit standard medium base (E26) sockets.

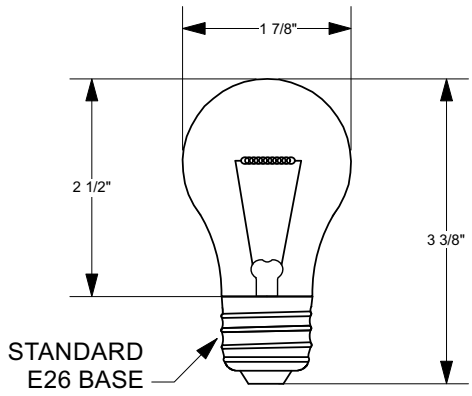
Note: For AC applications using the low voltage 40 watt bulbs with the LX40F make sure to use an Ingram SSF150W AC Flasher. For DC applications use the SSF1224D DC Flasher.

Features

- Fits standard medium base (E26) socket
- Great for low voltage warning lights
- Economical lighting for many applications

Technical Specifications

- Bulb type S-15
- Available in 15, 25, and 40 watts
- Available in 12 and 24 volts
- Clear glass bulb



Dimensions

LSA15CxxWxxV

Wattage

Voltage

Example: A 25 watt bulb operating at 12 volts would be LSA15C25W12V.

Part Number Ordering Key

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Alarm Light

Part No.: MX15

The Ingram MX15 is a UL Type 3, 3R, 4, 4X, 12, 13 low cost alarm light suitable for heavy duty applications inside and outdoors. The lens is molded from tough shatter resistant GE Lexan. This light is particular useful in areas with high ambient noise levels where an audible signal may not be heard.

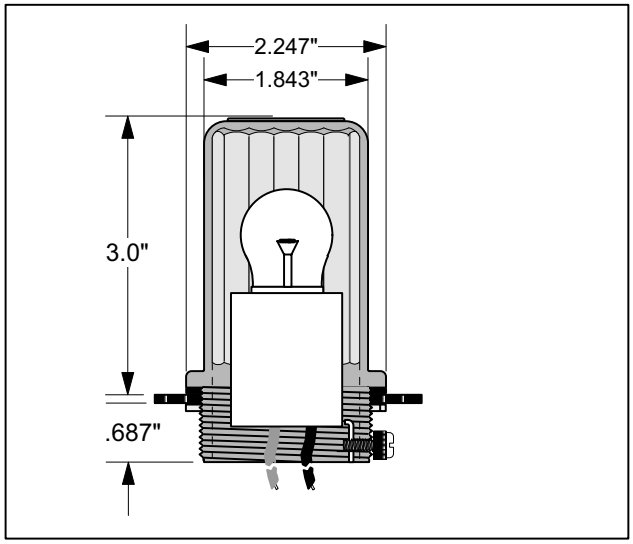
Features

- UL Recognized for use with UL NEMA Type 3, 3R, 4, 4X, 12 and 13 enclosures (E121431)
- Lens molded from GE Lexan that is shatter resistant and UV stabilized
- Top mounted gives 360 degree visibility
- Easy to install - One hole to punch
- Hose down proof
- Available in red or amber

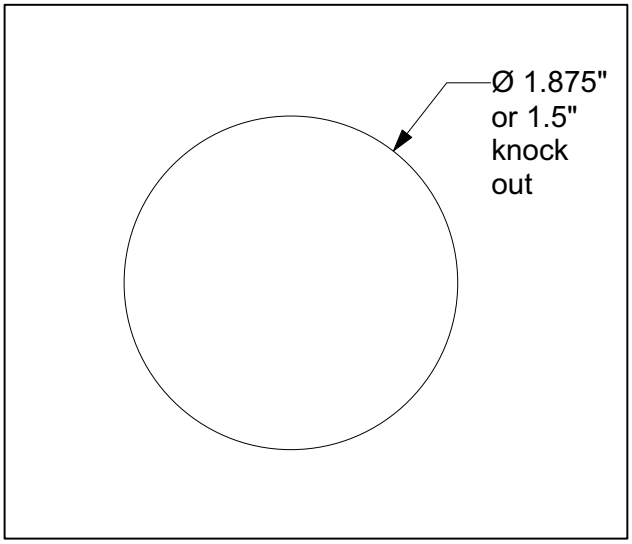
Technical Specifications

- Voltage: 12V, 24V AC/DC, 120VAC
- Current Draw: 120VAC 0.125 amps
  12V AC/DC 1.25 amps
  24V AC/DC 0.625 amps

12 and 24V, 15W bulbs are available for special order. Supplied with 15 watt, 120V bulb.



Cut-Away View



Hole Pattern For Mounting

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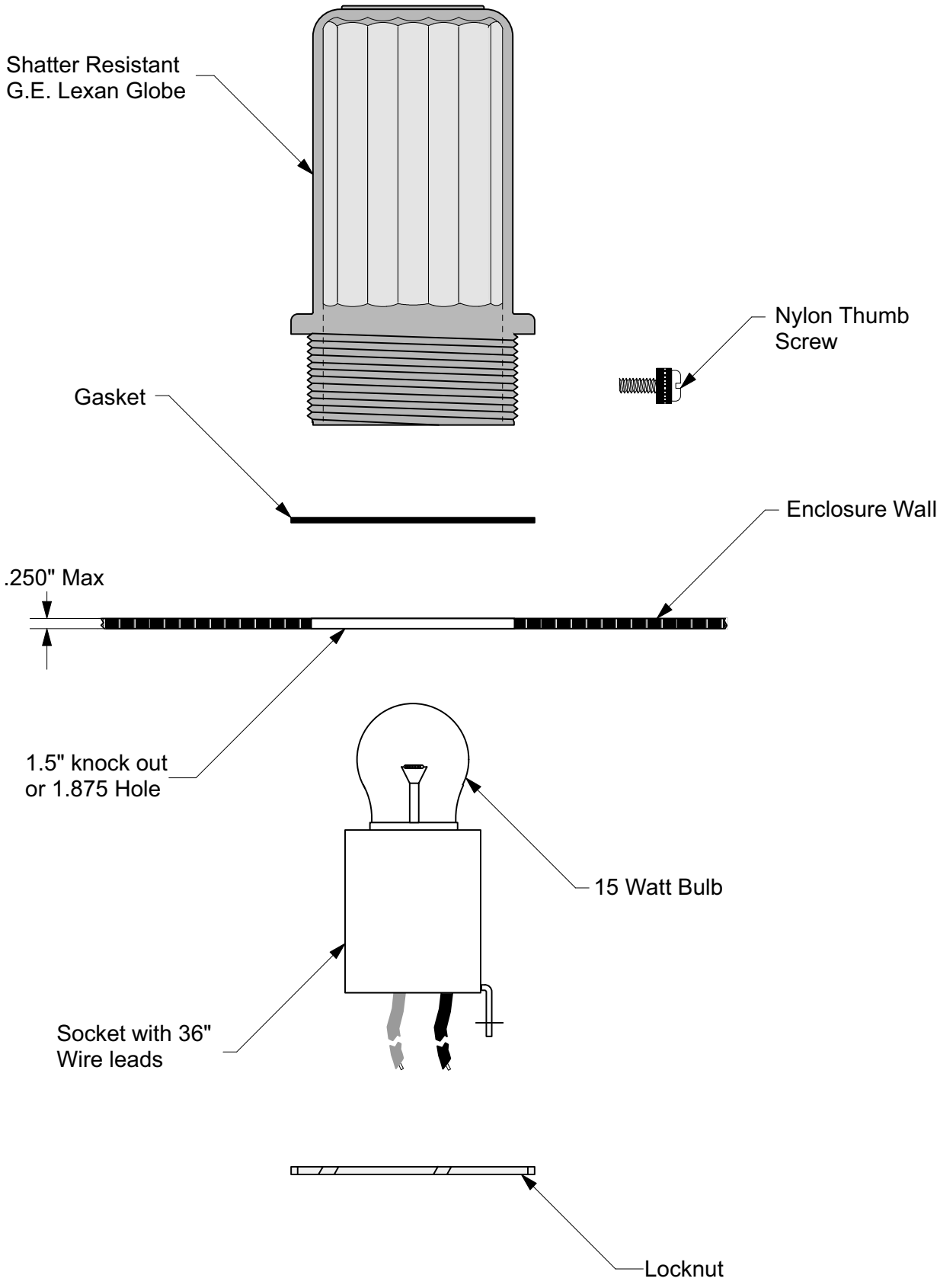


MX15 Assembly

Flashing Alarm Light

Part No.: MX25F

The Ingram MX25F is a UL Type 3, 3R, 4, 4X, 12, 13 low cost flashing alarm light suitable for heavy duty applications inside and outdoors. The lens is molded from tough shatter resistant GE Lexan. This light is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

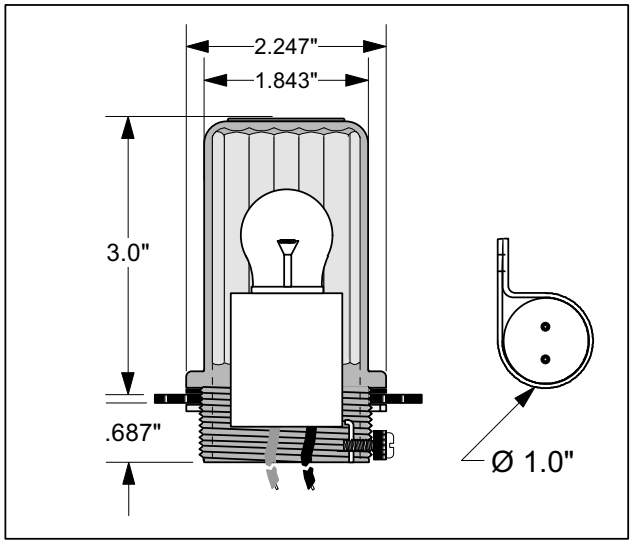
Features

- UL Recognized for use with UL NEMA Type 3, 3R, 4, 4X, 12 and 13 enclosures (E121431)
- Lens molded from GE Lexan that is shatter resistant and UV stabilized
- Top mounted gives 360 degree visibility
- Easy to install - One hole to punch
- Hose down proof
- Available in red or amber

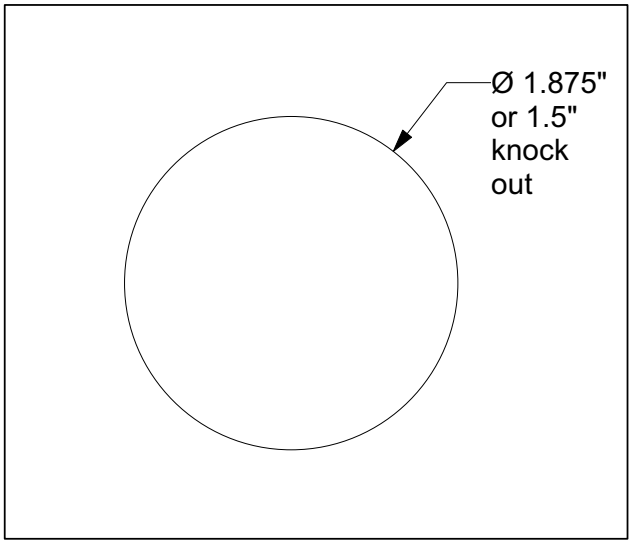
Technical Specifications

- Voltage: 120VAC
- Current Draw: .21 Amps max.
- 12 and 24 Volt available for special order
- Supplied with 25 watt bulb
- Supplied with Ingrams SSF150W solid state flasher

*The MX25F must be used with Ingram's SSF150W flasher in order to comply with UL requirements.



Cut-Away View



Hole Pattern For Mounting

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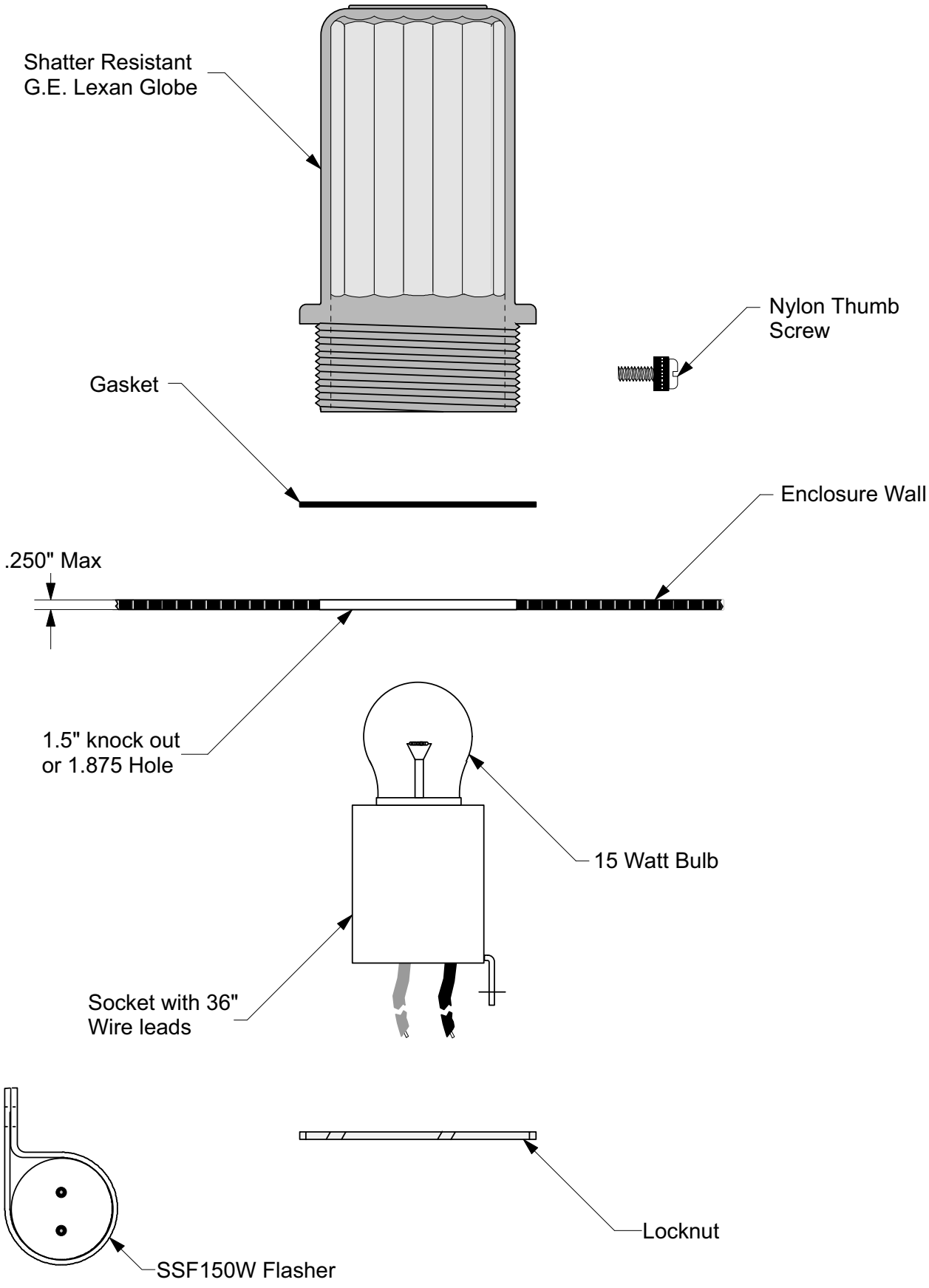


MX25F Assembly

12 and 24 Volt Incandescent Bulbs

Part No. - LSA11C Series - Refer to Key for Specific Part Number

Ingram has a large variety of low voltage tungsten filament incandescent bulbs for your alarm light needs. This series will fit the MX15 and MX25F alarm lights. These screw-in type bulbs all fit standard medium base (E26) sockets.

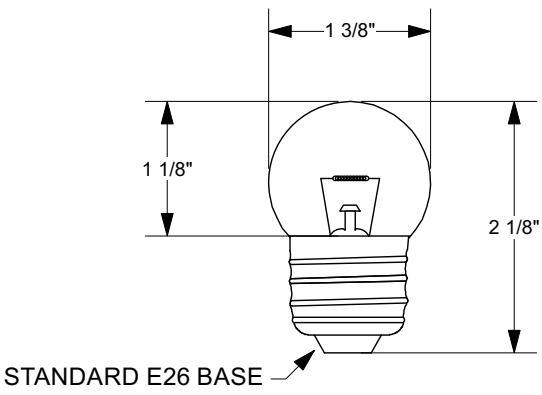
Note: For AC applications using low voltage 25 watt bulbs with the MX25F make sure to use an Ingram SSF150W AC Flasher. For DC applications use the SSF1224D DC Flasher.

Features

- Fits standard medium base (E26) socket
- Great for low voltage warning lights
- Economical lighting for many applications

Technical Specifications

- Bulb type S-11
- Available in 10, 15, and 25 watts
- Available in 12 and 24 volts
- Clear glass bulb



Dimensions

LSA11CxxWxxV

Wattage

Voltage

Example: A 10 watt bulb operating at 24 volts would be LSA11C10W24V.

Part Number Ordering Key

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Sunlight Visible LED Bulbs

Part No. - LS3483 & LS3463 Series - Refer to Key for Specific Part Number

Ingram has designed a variety of daylight visible, low power LED bulbs for your alarm needs. The LS3483 series fits Ingram's LX25 and LX40F alarm lights. The LS3463 series fits our MX15 and MX25F alarm lights. These screw-in type bulbs fit standard medium base (E26) sockets. Unlike incandescent bulbs that fail catastophically when the filament burns out or is broken, LED matrix designs will continue to light, should a single LED or a row fail.

NOTE: Use Ingram's SSF1224D DC Flasher or SSF150W AC Flasher in applications where flashing bulbs are required. For proper flash operation with the SSF150W at 120VAC, you will need a 3KΩ, 20 watt resistor in parallel with the bulb. See reverse side for illustration.

Features

- Fits standard medium base (E26) socket
- Stays lit should one or several LEDs fail
- Reduced power consumption makes smaller battery backups possible
- Durable - not as fragile as incandescents
- Available in up to three colors

Technical Specifications

- Available in 12VDC, 24VDC and 120 volts.

LS3483 - 31 LED matrix.

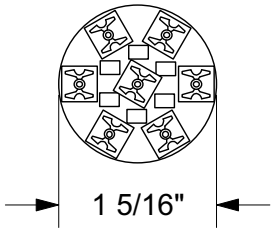
- Available in red, amber and white *
- Current draw: 23mA @ 120VAC
  76mA @ 24VDC
  82mA @ 12VDC

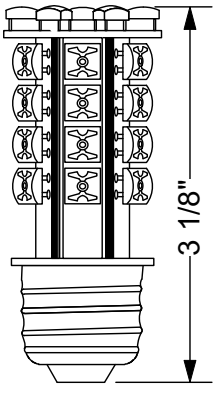
LS3463 - 25 LED matrix.

- Available in red and amber
- Current draw: 27mA @ 120VAC
  93mA @ 24VDC
  115mA @ 12VDC

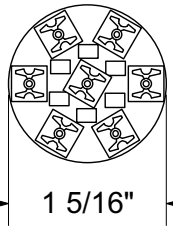
LS3483 Series

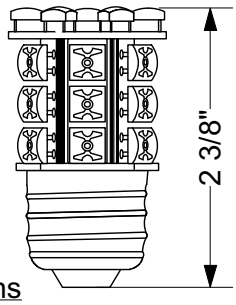
Always remove power before servicing any bulb





LS3463 Series





Dimensions

LS xxxx E26 xx yyyy z

- Series: LS3483 or LS3463
- No. of LEDs (25,31)
- Voltage
  - 012D = 12VDC
  - 024D = 24VDC
  - 120A = 120VAC
- LED color
  - R = Red
  - A = Amber
  - W = White*

Example:

LS3483E2631024DR = Red 31LED 24VDC

* White available for LS3483 Series, 120VAC only.

Part Number Ordering Key

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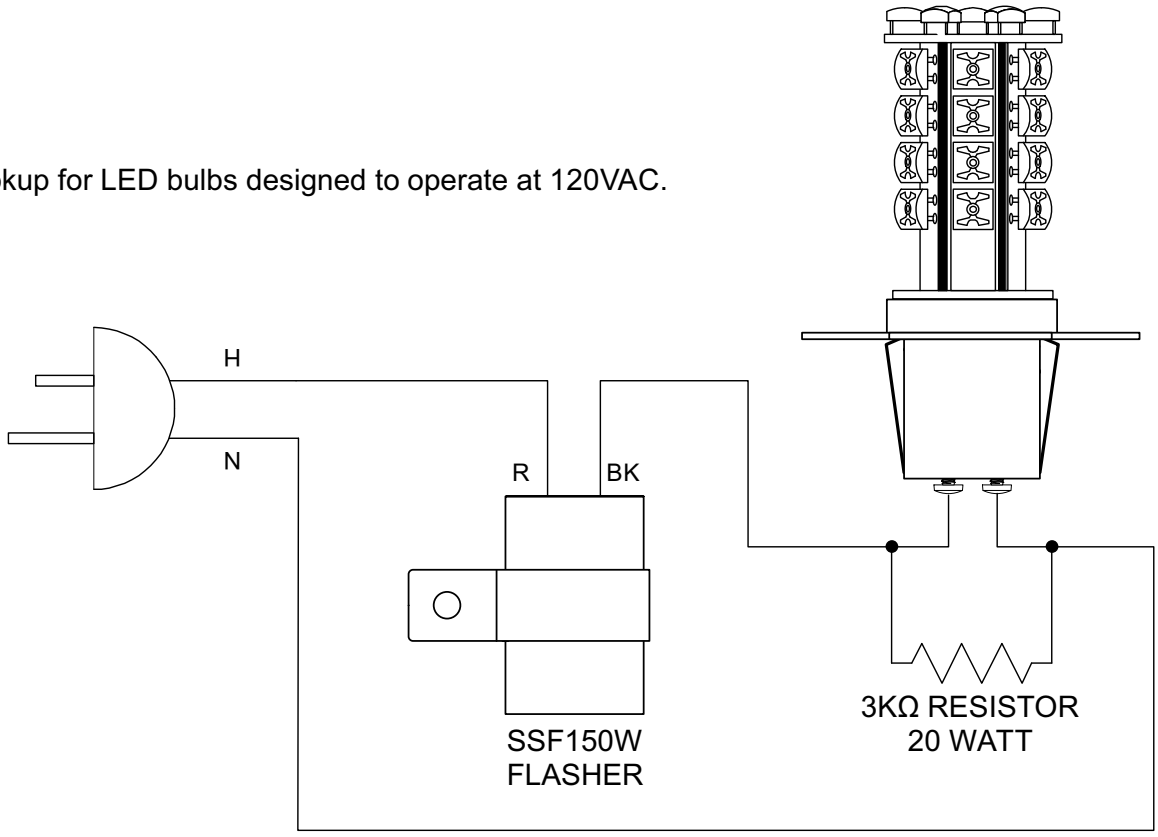
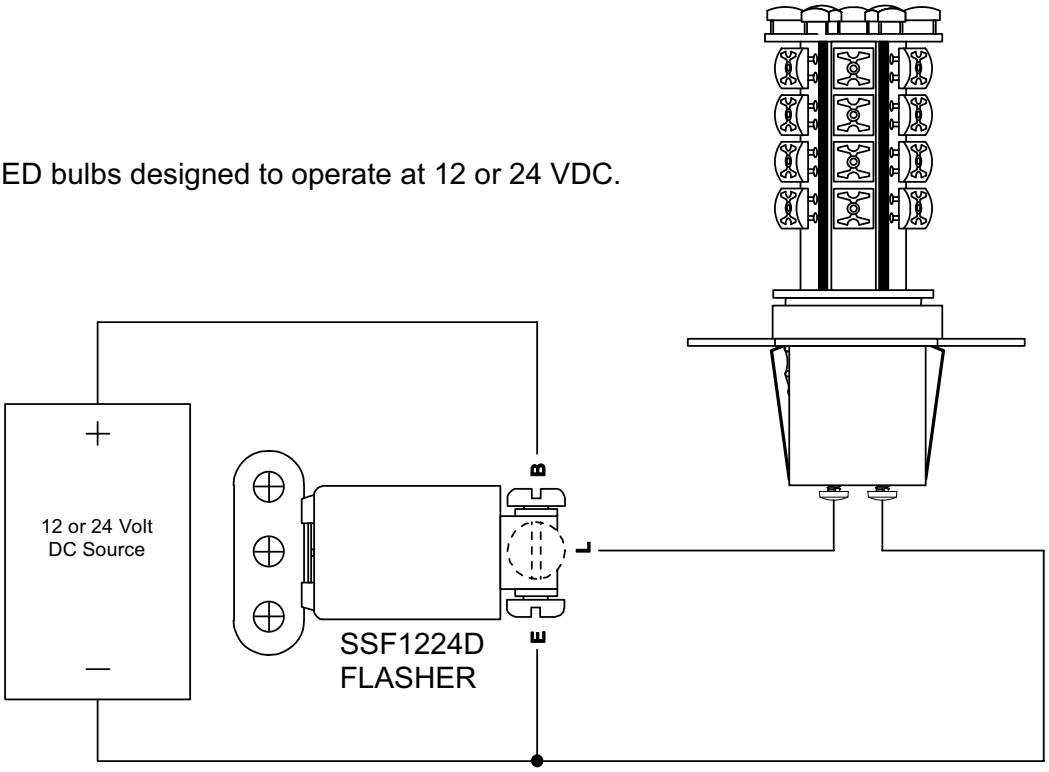
Hookup for LED bulbs designed to operate at 120VAC.



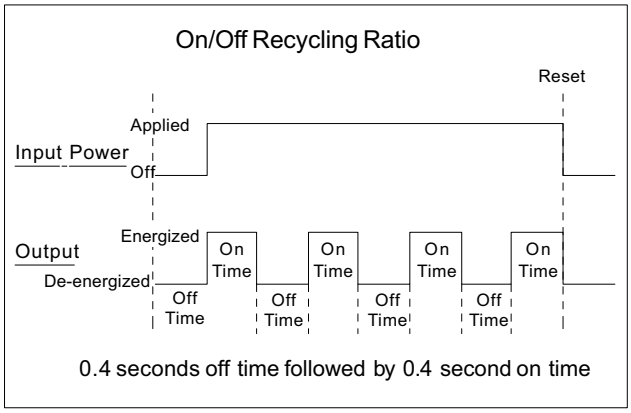
Hookup for LED bulbs designed to operate at 12 or 24 VDC.



Solid State Flasher

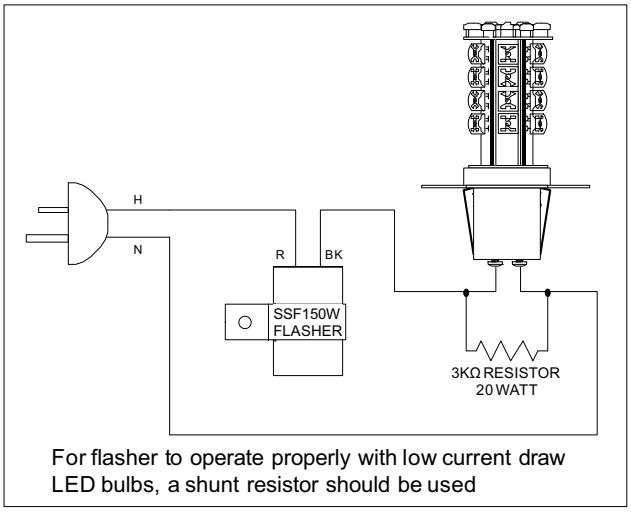
Part No.: SSF150W

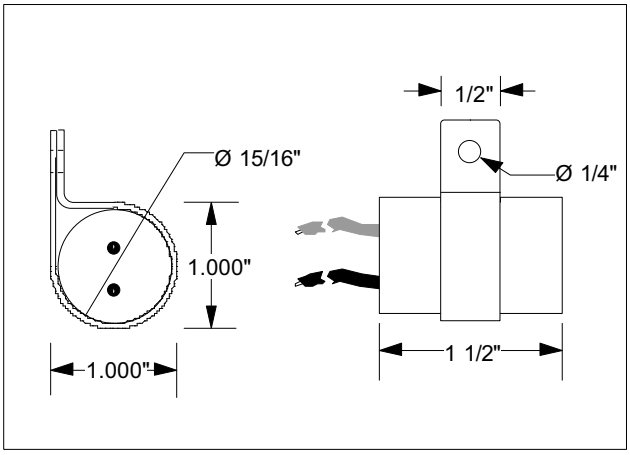
This highly reliable encapsulated solid state flasher is designed for use with incandescent or LED resistive loads. It can be used to directly flash 15 to 150-watt incandescent light bulb.

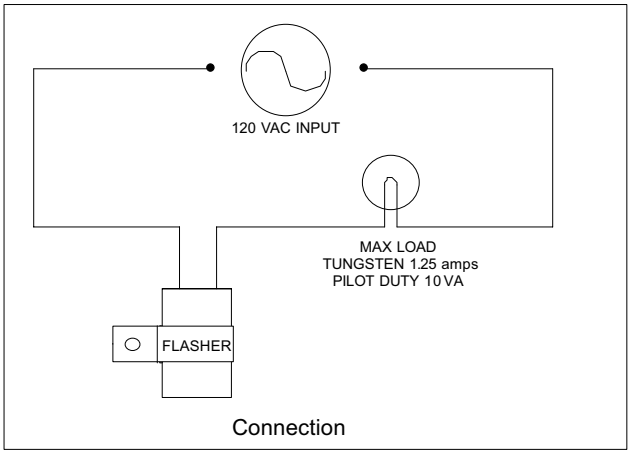


Technical Specifications

- Operating voltage is 120 volts AC
- Full wave AC output
- Maximum tungsten load is 1.25 amps
- Minimum pilot load is 10 VA
- Flash rate: 75 flashes per minute ±5%, factory set
- Operating temperature is -20°C to 40°C
- Insulated 20 gauge wire leads are 6" long







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Solid State DC Flasher

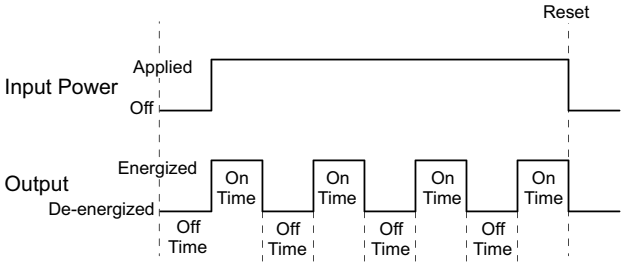
Part No. SSF-1224D

This encapsulated solid state flasher is designed for use with standard DC incandescent filament bulbs or the newer LED matrix lighting. Comes with built-in mounting tab.

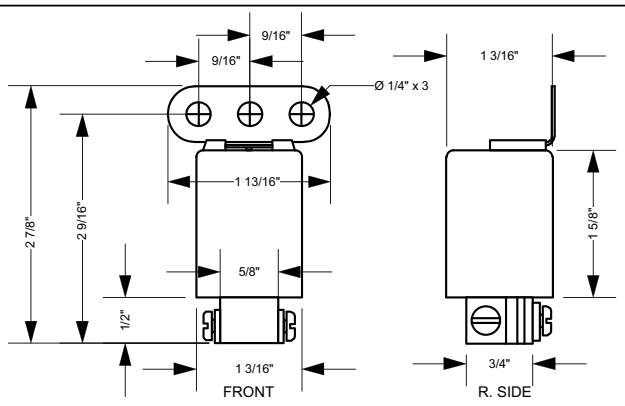
Technical Specifications

- Operating voltage: 12VDC to 24VDC
- Load current: Up to 15A
- Duty Cycle: 50%
- Flashing rate of 75 FPM
- Operating temperature -20˚C to 40˚C
- Screw clamp terminals with pressure plates allows connection without spade terminals.

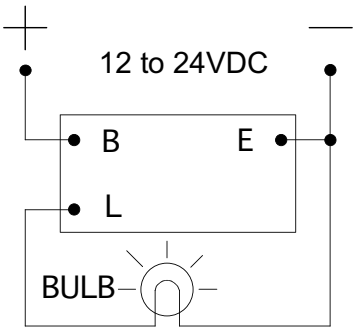
On/Off Recycling Ratio



0.4 seconds off time followed by 0.4 second on time



Dimensions



Connection

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Strobe Light

Part No.: SLX-123N

The Ingram SLX-123N is a adjustable low cost strobe light suitable for heavy duty applications inside and outdoors. It can be set by the user for three intensity levels: low, medium and high. The lens is molded from tough shatter resistant GE Lexan. This tamper resistant strobe is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

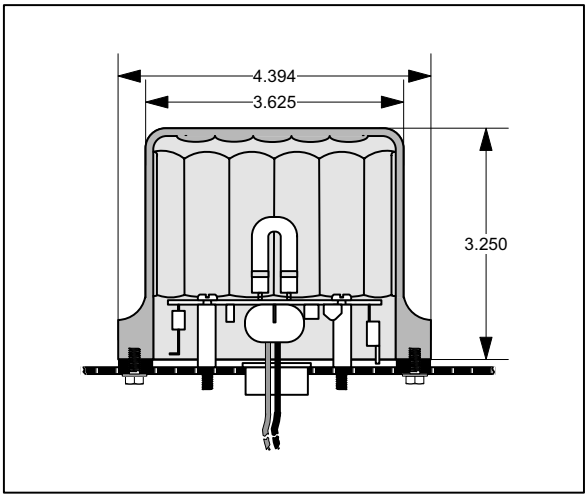
The SLX-123N strobe requires a DC power source. Ingram's BB-12 back-up battery with charger is suggested.

Features

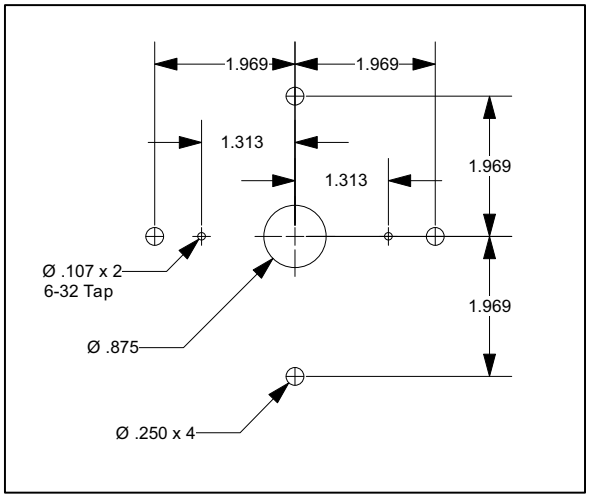
- Lens molded from GE Lexan that is shatter resistant and UV stabilized
- Low profile, top mounted gives 360 degree visibility
- Hose down proof
- Available in 5 colors: Red, Blue, Green, Amber and Clear

Technical Specifications

- Voltage: 12 or 24 VDC
- Current Draw: 115 mA ±20%
- 140 mA Max
- Supplied with Xenon Flash Tube and circuit board
  Requires DC power source
  Wire leads measure at least 6" from grommet



Cut-Away View



Hole Pattern For Mounting

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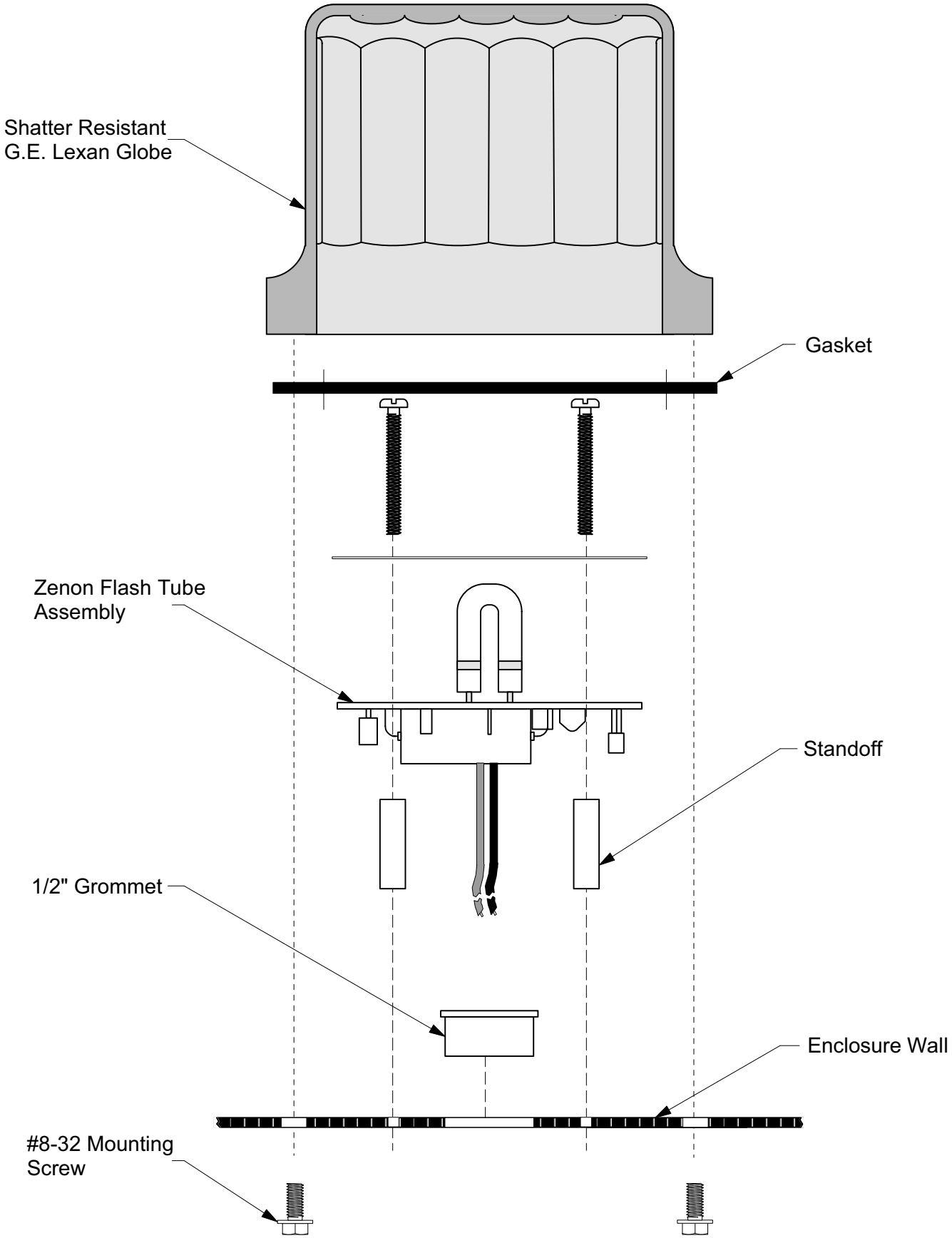


SLX-123N Assembly

AC Strobe

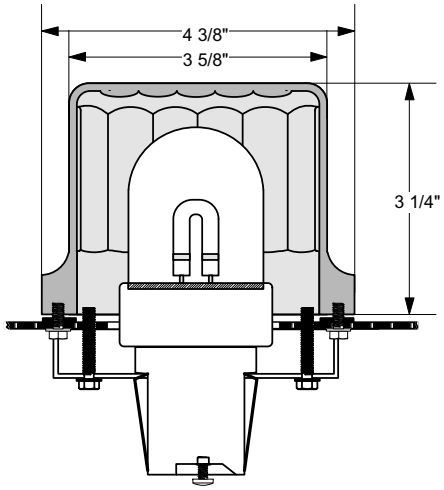
The Ingram SK120VAC is a Nema 4X low cost, low profile strobe suitable for heavy duty applications inside and outdoors. The lens is molded from shatter resistant GE Lexan and the strobe is hermetically sealed. This tamper resistant strobe is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

Features

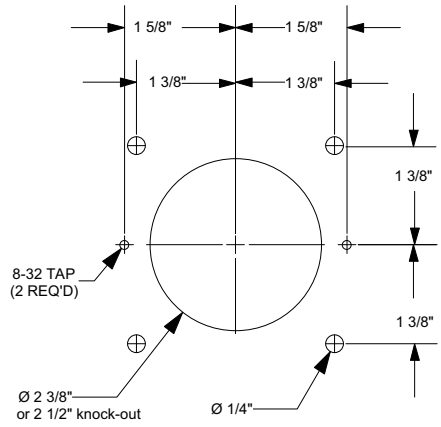
- Nema 4X
- Hermetically sealed
- Xenon U tube
- Rated for 5 million flashes
- Low current draw
- Easy to install
- Tamper Resistant
- Gasketed
- Available in 5 colors (red, amber, green, clear, blue)

Technical Specifications

- Model: SK120VAC
- Voltage: 120VAC
- Current Draw: 220mA max
  110mA avg.
- Flashes per Minute: 40
- Standard incandescent screw in light base - easy to install



Cut-Away View



Hole Pattern for Mounting

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AC Strobe

Part No. : S120VAC

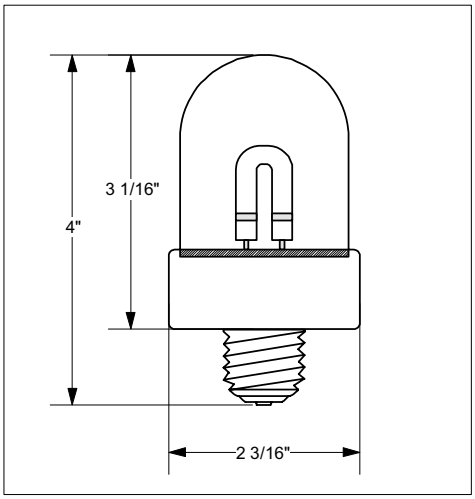
The Ingram S120VAC is a low cost, low profile strobe suitable for heavy duty applications. It is hermetically sealed and molded from shatter resistant plastic. This strobe is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

Features

- Xenon U tube
- Rated for 5 million flashes
- Low current draw
- Easy to install
- Molded from shatter resistant plastic
- Hermetically sealed

Technical Specifications

- Voltage: 120VAC
- Current Draw: 220mA max
  110mA avg.
- Flashes per Minute: 40
- Standard incandescent screw in light base - easy to install



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DC Strobe

Part No.: SK12VDC

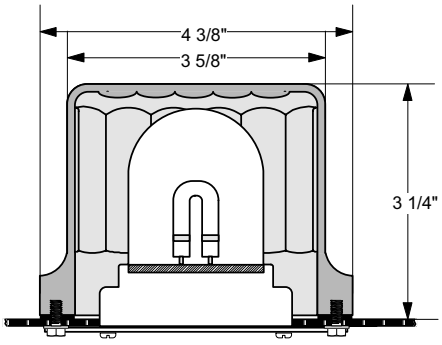
The Ingram SK12VDC is a Nema 4X low cost, low profile strobe suitable for heavy duty applications inside and outdoors. The lens is molded from shatter resistant GE Lexan and the strobe is hermetically sealed. This tamper resistant strobe is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

Features

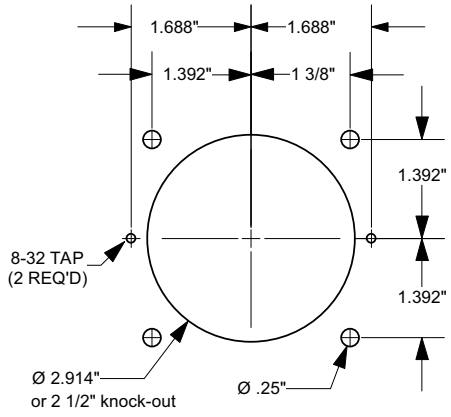
- Nema 4X
- Hermetically sealed
- Xenon U tube
- Rated for 5 million flashes
- Low current draw
- Easy to install
- Tamper Resistant
- Gasketed
- Available in 5 colors (red, amber, green, clear, blue)

Technical Specifications

- Voltage: 12VDC
- Current Draw: 90mA max
  75mA avg.
- Flashes per Minute: 30
- 24VDC available for special order



Cut-Away View



Hole Pattern For Mounting

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AC MiniStrobe

Part No. MS120A

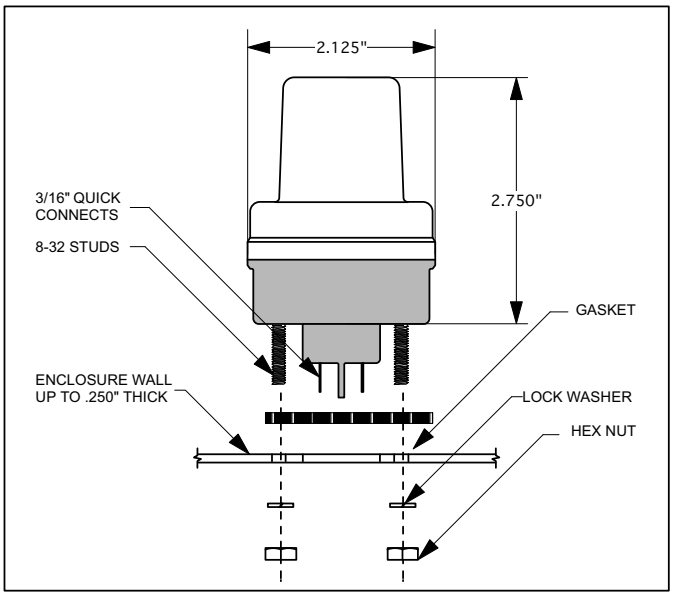
This rugged little industrial strobe light is UL Recognized for use on UL Listed Type NEMA 3, 3R, 4, 4X, 12 and13 enclosures. It is designed for use as a hard to ignore pilot light or to be mounted on top of a small control panel as an alarm beacon. It mounts through a 1/2" knock out and requires two 1/4" drilled holes. It can be installed in panels up to 1/4" thick.

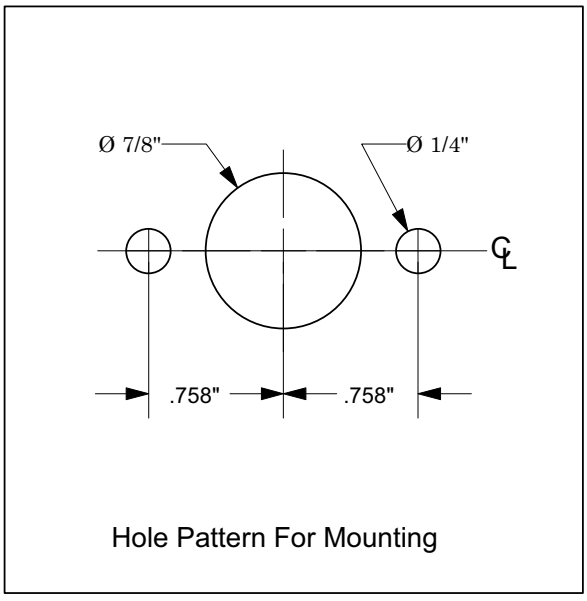
Features

- UL Recognized for use with UL NEMA Type 3R, 4X, 12 and 13 enclosures. E121431
- Molded from GE Lexan
- Hermetically sealed for corrosion resistance and reliablility.
- Lens and base are fusion welded to make one solid sealed unit.
- Available in green only.
- Easy three-hole mounting makes strobe light tamperproof.
- Provides 360° visibility.

Technical Specifications

- Operating voltage: 120VAC
- Current draw: Peak 28mA, Avg. 17mA
- Candle power: 60,000
- Flash rate: 90 ±5%
- Life expectancy: 700 hours
- Operating temperature: -20°C to 40°C
- Electrical connection: 3/16" quick connects





Hole Pattern For Mounting

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High Power MiniStrobe

Part No. HS Ministrobe: MSN120VAC

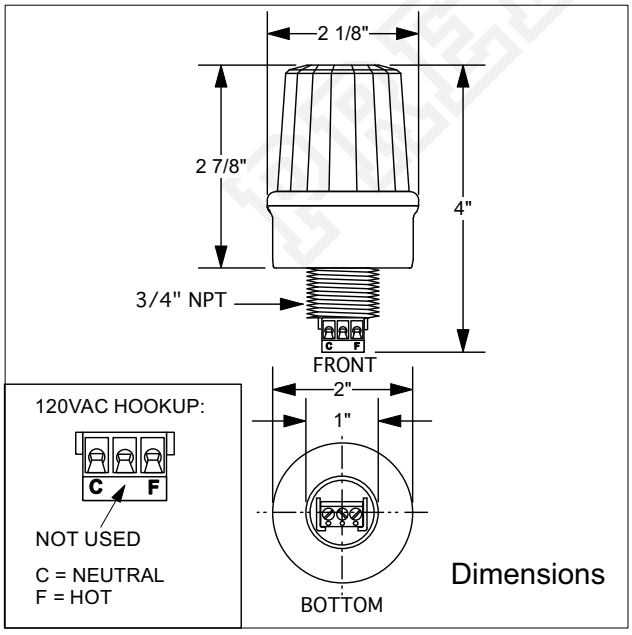
The Ingram High Power MiniStrobe is a super bright, daylight visible strobe light that can not be ignored. It is designed for use as an alarm beacon. It requires only a 3/4" knockout (1-1/16" diameter hole). It can be installed on panels up to 1/4" thick. We've modified the connection barrier to simplify installation. Meets NEMA 3, 3R, 4, 4X, 12, and, 13 environments.

Features

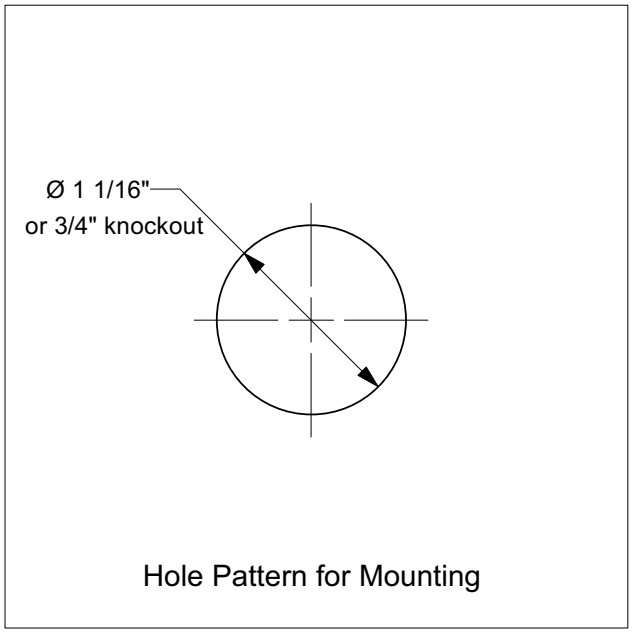
- Super Bright - Daylight Visible
- Molded from GE Lexan
- Hermetically sealed for corrosion resistance and reliability
- Available with red, amber, green or blue lens
- Easy one hole mounting makes light tamper proof
- Provides 360° visibility
- Comes with gasket and nylon mounting nut

Technical Specifications

- Voltage: 120VAC
- Current: 24mA
- FPM: 90 flashes per minute



Dimensions



Hole Pattern for Mounting

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AC/DC LED Alarm Light

Part No. SunBurst: SB120AC, SB1224AD

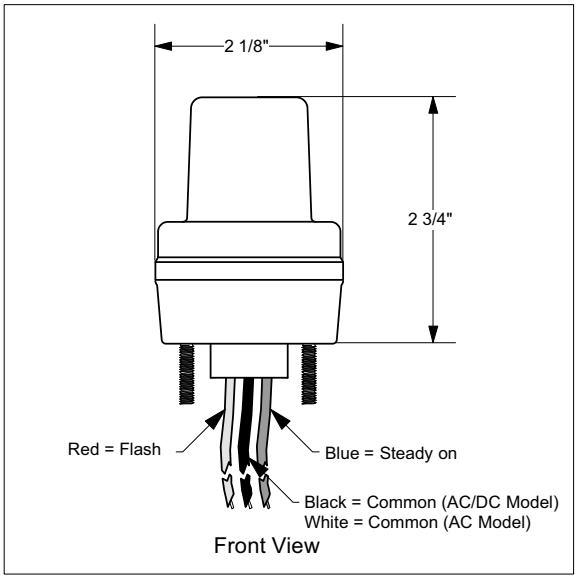
The Ingram SunBurst Strobe is a **Super Bright,** daylight visible **LED** that can not be ignored. It is designed for use as an alarm beacon. It mounts through a 1/2" knock out and requires two 1/4" drilled holes. It can be installed on panels up to 1/4" thick. UL Recognized for use in Type 3, 3R, 4, 4X, 12, and, 13.

Features

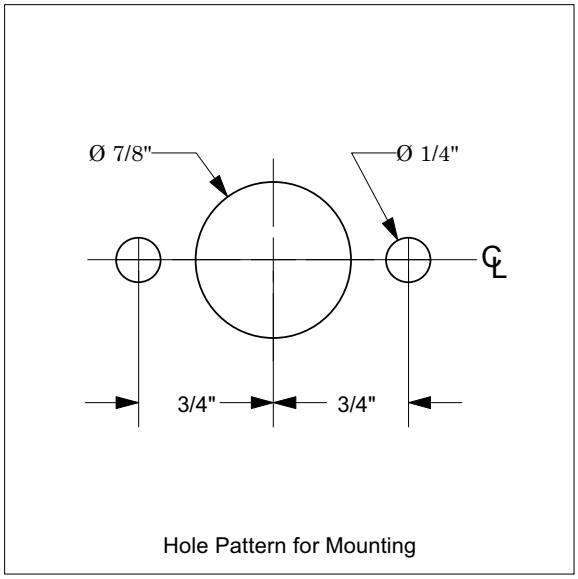
- Super Bright - Daylight Visible
- UL Recognized - E121431
- 2 operation modes: steady on and flash
- Molded from GE Lexan
- Hermetically sealed for corrosion resistance and reliability
- Available with Red, Amber or Green lens
- Easy three-hole mounting makes light tamper proof
- Provides 360° visibility
- Gasket and mounting hardware included

Technical Specifications

- Voltage: SB120AC - 120VAC
  SB1224AD - 12/24VDC or VAC
- Current: SB120AC - 150mA
  SB1224AD - 395mA
- Flashes per Minute: 60



Front View



Hole Pattern for Mounting

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Sunlight Visible LED Alarm Light

Part No. SunBurst: SBN120AC, SBN1224AD

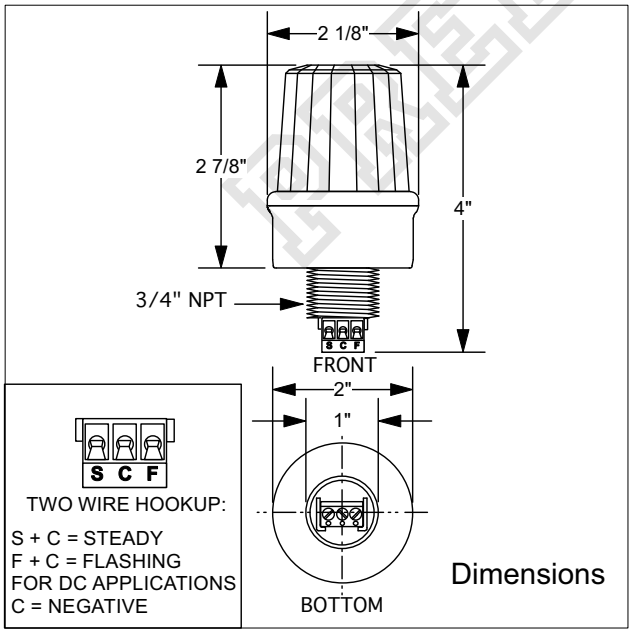
The Ingram SunBurst is a super bright**,** daylight visible LED light that can not be ignored. It is designed for use as an alarm beacon. It requires only a 3/4" knockout (1-1/16" diameter hole) to mount. It can be installed on panels up to 1/4" thick. Meets NEMA 3, 3R, 4, 4X, 12, and, 13 requirements.

Features

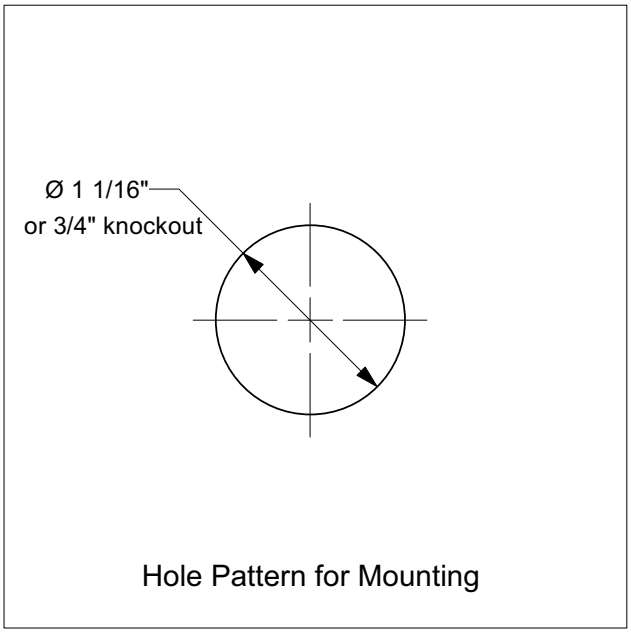
- Super Bright - Daylight Visible
- 2 operation modes: steady on and flash
- Molded from GE Lexan
- Hermetically sealed for corrosion resistance and reliability
- Available with red, amber, green or blue lens
- Easy one hole mounting makes light tamper proof
- Provides 360° visibility
- Comes with gasket and Lexan mounting nut

Technical Specifications

- Voltage: SBN120AC 120VAC
  SBN1224AD 12/24VDC or VAC
- Current : SBN120AC 48mA (max.)
  SBN1224AD 230mA (max.)@12V
  125mA flashing
  110mA (max.)@24V
  67mA flashing
- Flash rate: 60 flashes per minute



Dimensions



Hole Pattern for Mounting

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DC Rotating Beacon

Part No.: RB1215D

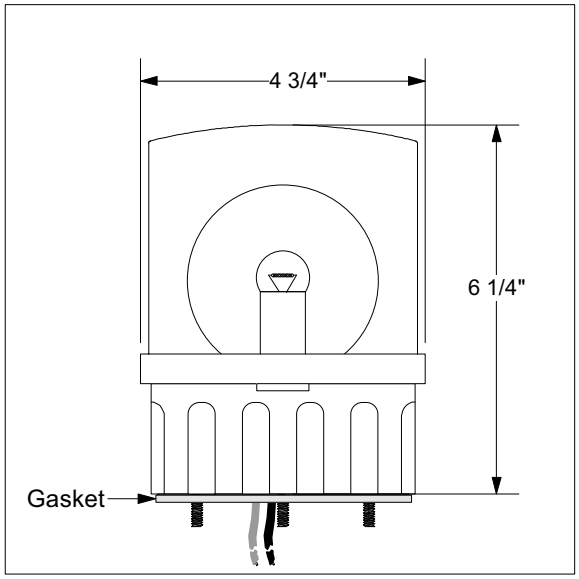
The Ingram RB1215 is a NEMA Type 3, 3R, 12 and 13 low cost rotating beacon suitable for heavy duty applications inside and outdoors. Applications include, but are not limited to, use on vehicles, machines, and control panels. This rotating beacon is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

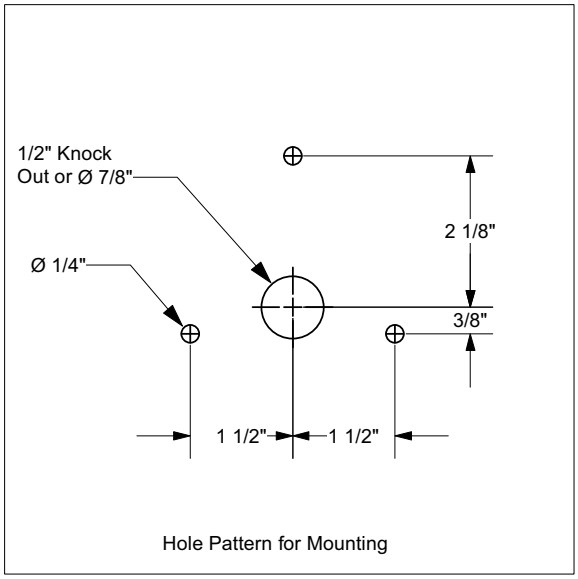
Features

- NEMA Type 3, 3R, 12,and 13
- Variable speed motor for rotation
- Gasketed
- Stainless steel ring
- Globe molded from shatter resistant polycarbonate
- Available in 3 colors (red, amber, and green)

Technical Specifications

- Voltage: 12VDC
- Current Draw: 1.26A max
- Bulb: 15 Watts Max
- Power must be supplied by UL Class 2
- power source

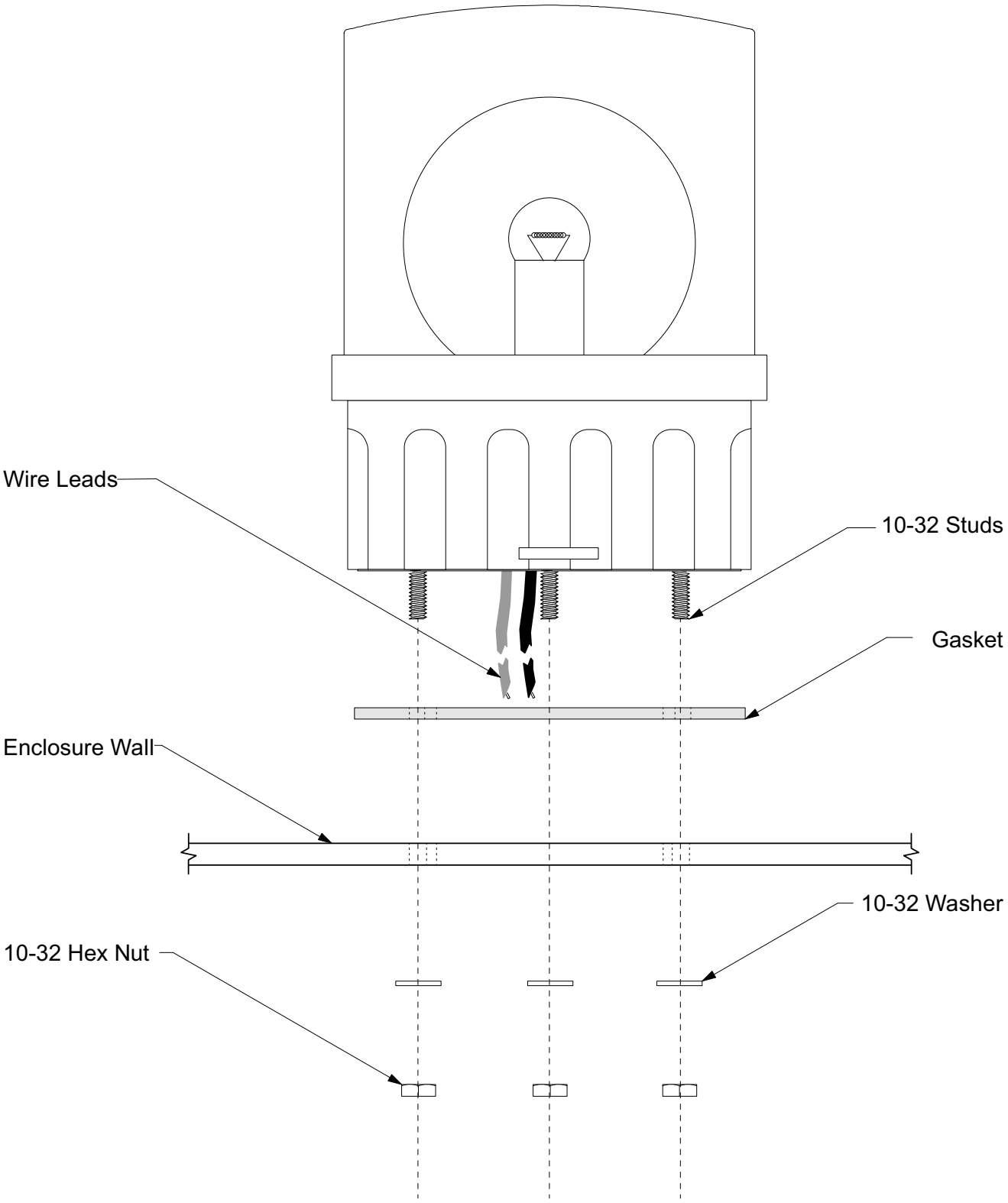




Hole Pattern for Mounting

8725 Youngerman Court Ste. 206 Jacksonville, FL 32257 ■ 888-875-2221 ph (904)778-2444 fax ■ Website:www.ingramproducts.com ■ e-mail: info@ingramproducts.com

RB1215D Assembly



DC Audio Alarm & Beacon

Part No. Sounder31: AH03127-BS

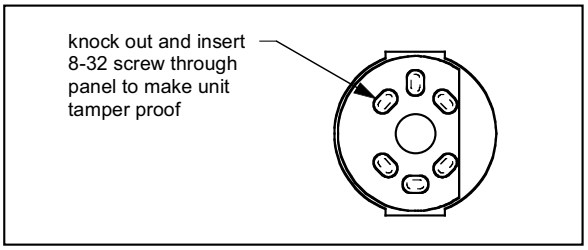
The Sounder31 siren with LED was designed for use in industrial control systems as well as for use in fire alarm and security systems. The combination audio and visual is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

Features

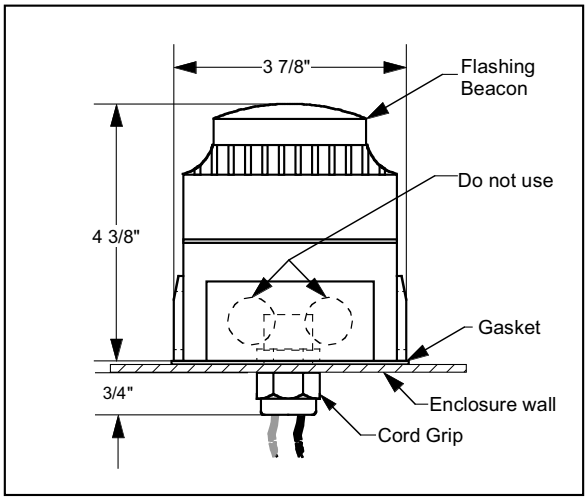
- 31 tones selectable by dip switch
- Weather proof
- High sound output
- Variable output
- Low current consumption
- 12/24 VDC auto select
- High efficiency lens for maximum light output
- High Reliability LED Light Source
- Two sets of in and out terminals for parallel operation
- Multiple mounting methods
- Easy one hole mounting - 1/2" KO or 7/8" hole
- Add 8-32 screw to make unit tamper proof
- Supplied with UL Listed cord grip that accepts wire from 1/8" - 3/16" OD

Technical Specifications

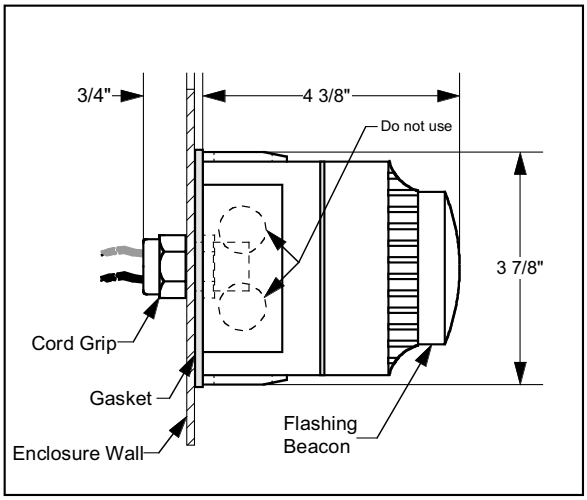
- Voltage: 12~24 VDC
- Current Draw: 34mA max
- Vertical Mounting not recommended for outdoor use
- Do not use two knock outs in front of unit



Bottom View



Mounting for Indoor Use



Mounting for Outdoor Use

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Piezo Sound Alarm

Part No.: See Chart

The PW and PB series of panel mount piezo sound alarms was designed to be a cost-effective audible alarm for use in industrial control systems. It is molded from tough GE Valox, weatherproof and suitable for use in corrosive environments, outdoor and indoor.

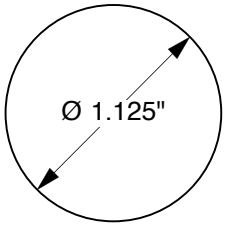
***Designed for use with Ingram's SM120A Silence Module**

Features

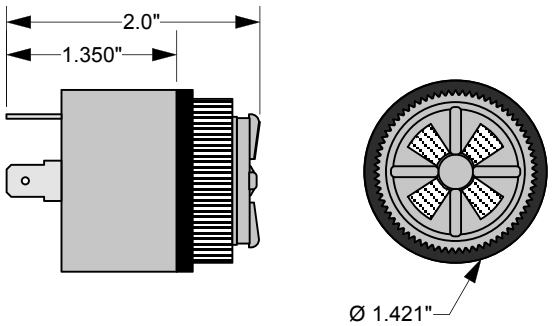
- Distinctive tones cut through ambient noise
- UL Recognized (E175530) for use in UL Type 3,3R, 4X, 12 and 13 environments
- Also meets NEMA 3, 3R, 4X, 12 and 13 requirements
- All solid state construction = reliability
- Encapsulated for durability and corrosion resistance
- Molded from tough GE Valox
- Low power consumption
- Installs in 1.125" hole or 3/4" standard K.O.
- Comes with gasket installed
- PW Series available in Red or Black
- PB Series available in Black

Technical Specifications

- Sound output: Varies by model (see chart)
  95dB min. @ 2 Feet
  103dB min @ 2 Feet
  108dB min @ 2 Feet
- Resonant frequency 2.9± 0.5kHz
- Operating voltage: See Chart
- Maximum current draw: See Chart
- Operating temperature: -20°C to 50°C
- Electrical connections: 1/4" Quick connect terminals.
- Fits panels up to 1/4" thick
- Comes with manual volume Damper (removable)
- Multitone buzzers have 3 terminals



Cut Out



Dimension

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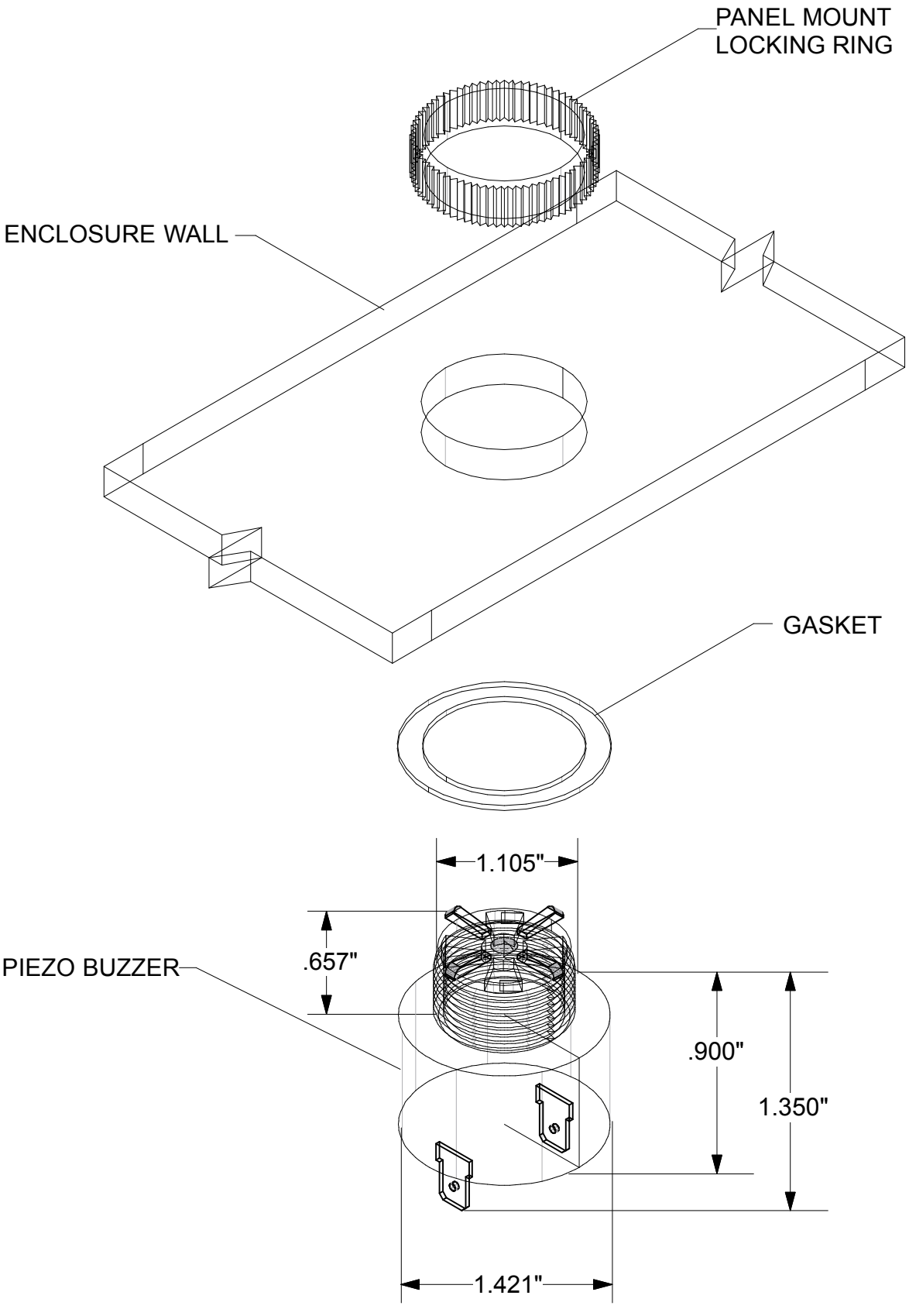
Piezo Installation



Piezo Sound Alarm Models

Ingram Part #	Voltage	Current Max	Tone Type	Output	UL & Nema Rating
PW120A	40 to 130 VAC	40.0 mA	Warble	95dB	3, 3R, 4, 4X, 12 & 13
PW24D	10 to 28 VDC	30.0 mA	Warble	95dB	3, 3R, 4, 4X, 12 & 13
PW12D	4 to 15 VDC	30.0 mA	Warble	95dB	3, 3R, 4, 4X, 12 & 13
PB120AMB-X	120 VAC	20.0 mA	Medium Loud Beep	95dB	3, 3R, 4, 4X, 12 & 13
PB120AXC-X	120 VAC	30.0 mA	Extra Loud Continuous	103dB	3, 3R, 4, 4X, 12 & 13
PB120AMC-X	120 VAC	30.0 mA	Medium Loud Continuous	95dB	3, 3R, 4, 4X, 12 & 13
PB530ADMC-X	5 to 30 AC/DC	30.0 mA	Medium Loud Continuous	95dB	3, 3R, 4, 4X, 12 & 13
PB330DXCX-X	3 to 30 VDC	30.0 mA	Extra Loud Continuous	103dB	3, 3R, 4, 4X, 12 & 13
PB524ADMW-X	5 to 24 AC/DC	25.0 mA	Medium Loud Warble	95dB	3, 3R, 4, 4X, 12 & 13
PB525DCH-X	5 to 25 VDC	40.0 mA	Chime	95dB	3, 3R, 4, 4X, 12 & 13
PB628DUT-X	6 to 28 VDC	50.0 mA	Ultra Loud Staccato	108dB	3, 3R, 4, 4X, 12 & 13
PB628DUS-X	6 to 28 VDC	50.0 mA	Ultra Loud Siren	108dB	3, 3R, 4, 4X, 12 & 13
PB628DUW-X	6 to 28 VDC	50.0 mA	Ultra Loud Warble	108dB	3, 3R, 4, 4X, 12 & 13
PB515DUW/UC-X	5 to 15 VDC	50.0 mA	Ultra Loud Warble or Continuous	108dB	3, 3R, 4, 4X, 12 & 13
PB628DUW/UC-X	6 to 18 VDC	50.0 mA	Ultra Loud Warble or Continuous	108dB	3, 3R, 4, 4X, 12 & 13
PB624ADFB-X	6 to 24 AC/DC	40.0 mA	Fast Beep	95dB	3, 3R, 4, 4X, 12 & 13
PB120AFB-X	120 VAC	60.0 mA	Fast Beep	95dB	3, 3R, 4, 4X, 12 & 13
PB120AFS-X	120 VAC	40.0 mA	Fast Siren	95dB	3, 3R, 4, 4X, 12 & 13
PB630ADFS-X	6 to 30 AC/DC	60.0 mA	Fast Siren	95dB	3, 3R, 4, 4X, 12 & 13

Also Available:

PS12DWOGD - Same as PW12D but without gasket and damper

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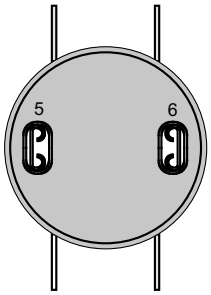
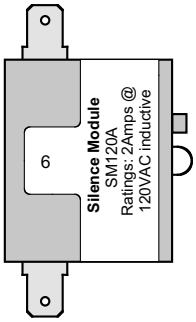
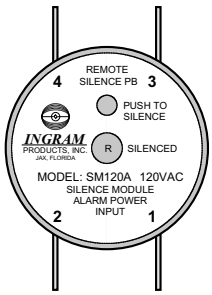
Silence Module

Part No.: SM120A, SM24D, SM12D



4ea 1⁄4" fully insulated connectors included





E175530

The new Ingram patent-pending Silence Module is a simple but clever device. It replaces the silence relay and socket normally used with audible alarms that require a silence push-button. The main benefits to OEM's are savings in labor, material and panel space. The Silence Module has an LED located on the back that, when lit, indicates that the alarm has been silenced. The Silence Module also has a built-in silence push-button that can be accessed from the back of the module. In addition to the integrated silence push button, the Silence Module has provisions to connect a remote silence push-button.

The Silence Module is designed for use with, but is not limited to, Ingram Products' Type PW piezo warbler audible alarm. The Silence Module simply plugs into the back of the piezo warbler as illustrated on the back of this page.

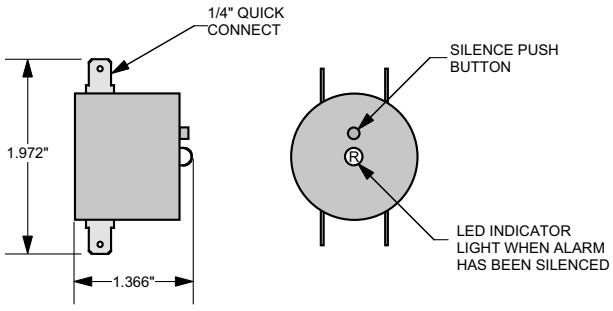
The Silence Module is available for use with 120VAC, 12 and 24VDC alarm power, the same as our piezo warblers. It will handle inductive and resistive loads up to 2 amps.

Features

- UL recognized for use in UL508 industrial control panels. UL File No. E175530.
- All components are encapsulated for protection.
- Electrical connections are 1/4" quick connects for fast installation.
- LED indicates that the Silence Module is in the silenced condition.
- Easy to understand, install and operate.
- Built-in Silence push button accessible from back of Silence Module.
- Quick-connect terminal available for remote silence push button.
- All models are in stock and ready for same-day shipment.

Specifications

- SM120A rated for use with 120VAC audible alarm.
  SM24D rated for use with 24VDC audible alarm.
  SM12D rated ro use with 12VDC
- Max current: 2 amps
- Power consumed: 8.5mA @ 120VAC.
  20mA @ 24VDC
  33mA @ 12VDC
- Operating temp: -30°C to +60°C.



Note: In order to comply with UL requirements use fully insulated connectors for power and remote silence push button.

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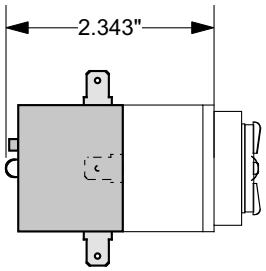
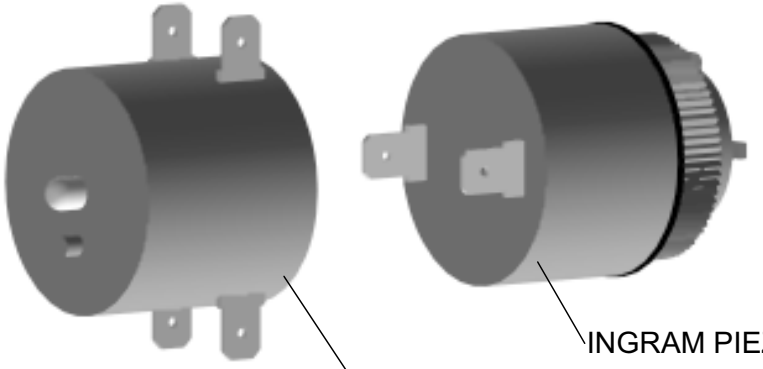


Silence Module installed on Ingram Piezo Warbler.

SILENCE MODULE

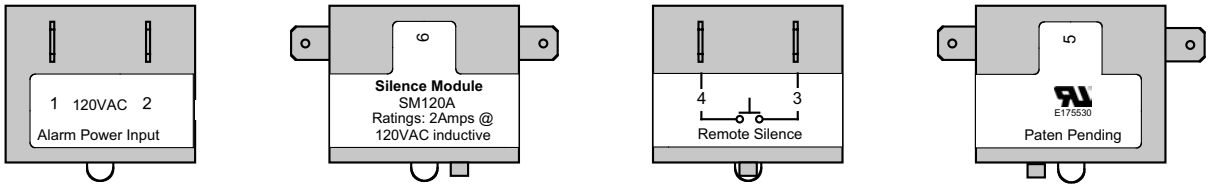
SM120A, SM24D, SM12D



INGRAM PIEZO WARBLER

SILENCE MODULE

PIN NUMBERS



BOTTOM | LEFT SIDE | TOP | RIGHT SIDE

WIRING SCHEMATIC

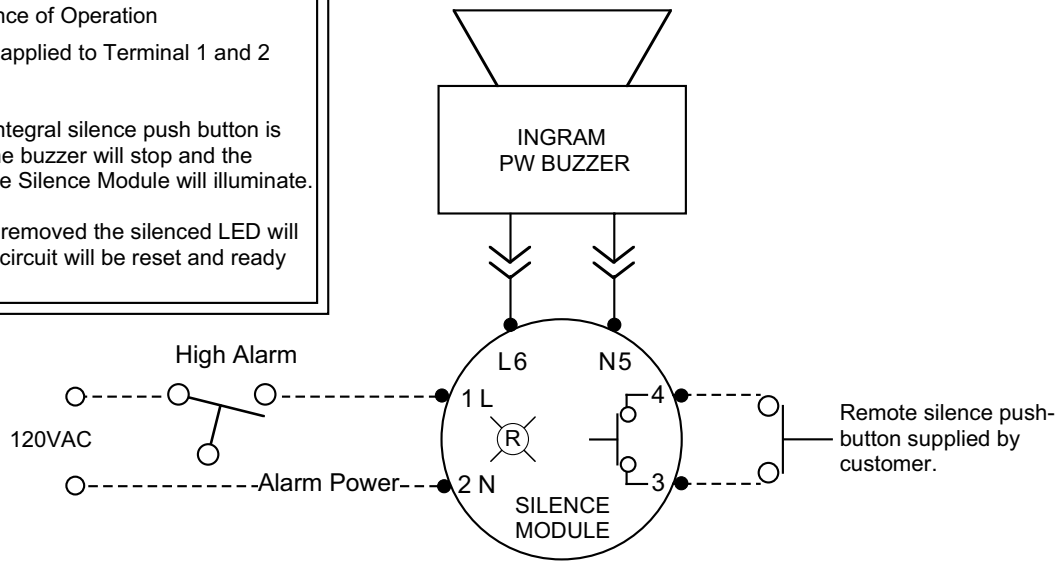
Max load: 2Amps inductive

Sequence of Operation

When alarm power is applied to Terminal 1 and 2 the buzzer will sound.

When the remote or integral silence push button is momentarily closed the buzzer will stop and the LED on the back of the Silence Module will illuminate.

When alarm power is removed the silenced LED will turn off. The silence circuit will be reset and ready for the next alarm.



CAUTION: OBSERVE POLARITY WHEN PLUGGING IN DC MODULES!

DC Audio Alarm

Part No. Sounder31: AH03127-S

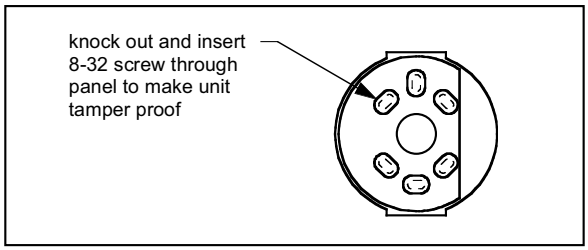
The Sounder31 siren was designed for use in industrial control systems as well as for use in fire alarm and security systems.

Features

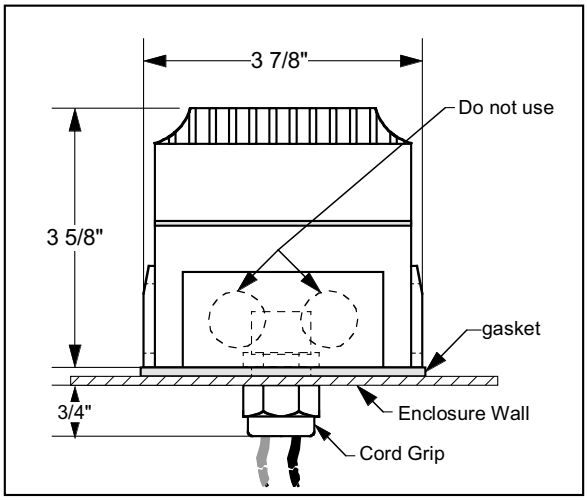
- 31 tones selectable by dip switch
- Weather proof
- High sound output
- Variable output
- Low current consumption
- 12/24 VDC operation auto select no adjustment required
- Two sets of In and out terminals for parallel operation
- Multiple mounting methods
- Easy one hole mounting - 1/2" KO or 7/8" hole
- Add 8-32 screw to make unit tamper proof
- Supplied with UL Listed cord grip that accepts wire from 1/8" - 3/16" OD

Technical Specifications

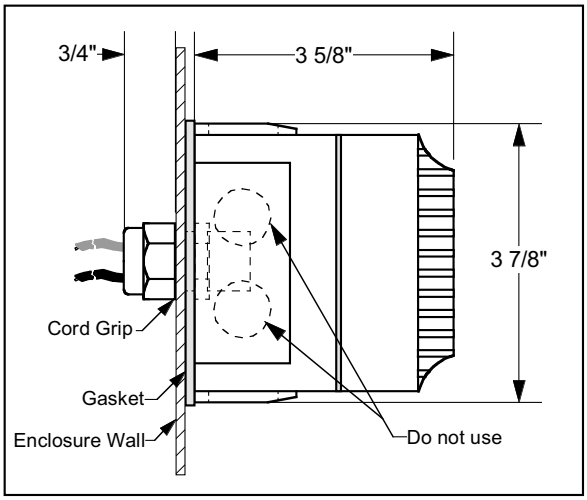
- Voltage: 12~24 VDC
- Current Draw: 34mA max
- Vertical mounting not recommended for outdoor use
- Do not use two knock outs in front of unit



Bottom View



Mounting for Indoor Use



Mounting for Outdoor Use

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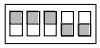
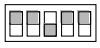
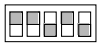
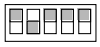
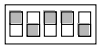
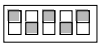
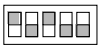
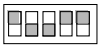
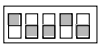
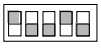
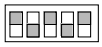
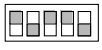
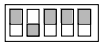
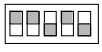
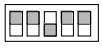
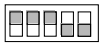
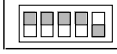
Technical Data for AHM Series Alarms

Switch Positon	Tones	Output (dB)	Current (mA)
	Alternating Tones 800/970 Hz at 2Hz	101	15.1
	Sweeping 800/970Hz at 7Hz	100	16.1
	Sweeping 800/970Hz at 1Hz	110	14.5
	Continuous at 2850Hz	110	37.4
	Sweeping 2400-2850Hz at 7Hz	109	25.4
	Sweeping 2400-2850Hz at 1Hz	112	24.2
	Slow Whoop	101	14.7
	Sweep 1200 - 500Hz at 1Hz	100	15.7
	Alternating Tones 2400/2850Hz at 2Hz	112	26.4
	Intermittent Tones of 970 Hz at 1Hz	102	13.0
	Alternating Tones 800/970Hz at 1Hz	103	16.2
	Intermittent Tones of 2850Hz for 400ms	114	13.7
	970Hz at 1/4 sec. On, 1 sec. Off	98	13.0
	Continuous at 970Hz	106	19.9
	554 Hz for 100ms and 440Hz for 400ms	97	14.5
	Intermittent 660Hz 150ms on / 150ms off	93	14.7
	Intermittent 600Hz 1.8 sec. on / 1.8 sec. off	96	12.5
	Intermittent 600Hz 6.5 sec. on / 13 sec. off	96	12.9
	Continuous 660Hz	95	15.0
	Alternating 554 / 440Hz at 1Hz	100	14.7
	Intermittent 660Hz at 1Hz	95	13.1
	Intermittent 2850Hz 500ms on / 500ms off	111	16.1
	Sweep 800- 970Hz at 50Hz	98	17.7
	Sweep 2400 - 2850Hz 500ms on / 500ms off	109	33.7
	Intermittent 970Hz 500ms on 500ms off	102	13.0
	Intermittent 2850Gz 500ms on 250ms off	114	13.5
	Continuous at 4kHz	108	26.5
	Intermittent 400Hz 500ms on / 250ms off	98	14.2
	Intermittent 400Hz 500ms on / 250ms off	95	13.5
	Sweeping 320 / 480Hz at 40Hz	95	14.0
	Intermittent 2kHz 200ms on / 500ms off	108	14.0

DC Audio Alarm & Beacon

Part No. Sounder31: AH03127-BS

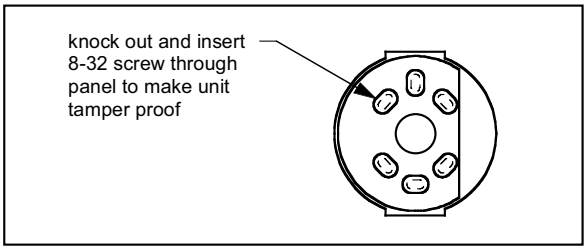
The Sounder31 siren with LED was designed for use in industrial control systems as well as for use in fire alarm and security systems. The combination audio and visual is particularly useful in areas with high ambient noise levels where an audible signal may not be heard.

Features

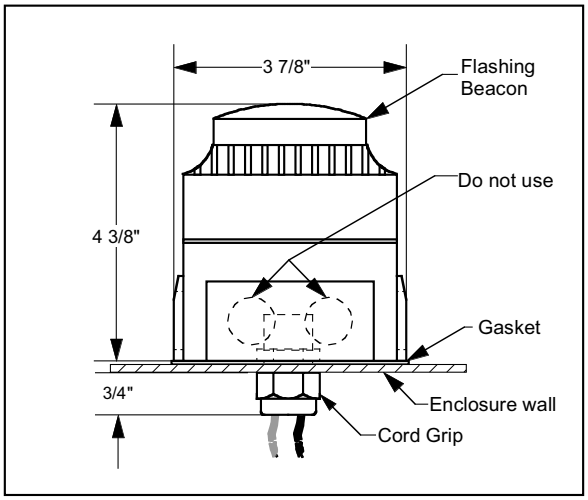
- 31 tones selectable by dip switch
- Weather proof
- High sound output
- Variable output
- Low current consumption
- 12/24 VDC auto select
- High efficiency lens for maximum light output
- High Reliability LED Light Source
- Two sets of in and out terminals for parallel operation
- Multiple mounting methods
- Easy one hole mounting - 1/2" KO or 7/8" hole
- Add 8-32 screw to make unit tamper proof
- Supplied with UL Listed cord grip that accepts wire from 1/8" - 3/16" OD

Technical Specifications

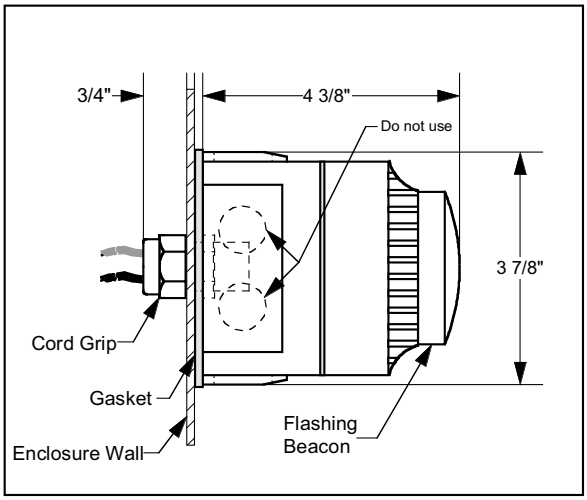
- Voltage: 12~24 VDC
- Current Draw: 34mA max
- Vertical Mounting not recommended for outdoor use
- Do not use two knock outs in front of unit



Bottom View



Mounting for Indoor Use



Mounting for Outdoor Use

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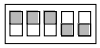
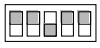
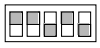
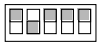
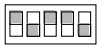
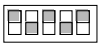
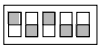
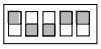
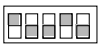
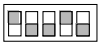
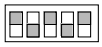
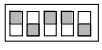
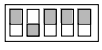
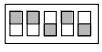
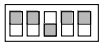
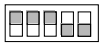
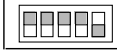
Technical Data for AHM Series Alarms

Switch Positon	Tones	Output (dB)	Current (mA)
	Alternating Tones 800/970 Hz at 2Hz	101	15.1
	Sweeping 800/970Hz at 7Hz	100	16.1
	Sweeping 800/970Hz at 1Hz	110	14.5
	Continuous at 2850Hz	110	37.4
	Sweeping 2400-2850Hz at 7Hz	109	25.4
	Sweeping 2400-2850Hz at 1Hz	112	24.2
	Slow Whoop	101	14.7
	Sweep 1200 - 500Hz at 1Hz	100	15.7
	Alternating Tones 2400/2850Hz at 2Hz	112	26.4
	Intermittent Tones of 970 Hz at 1Hz	102	13.0
	Alternating Tones 800/970Hz at 1Hz	103	16.2
	Intermittent Tones of 2850Hz for 400ms	114	13.7
	970Hz at 1/4 sec. On, 1 sec. Off	98	13.0
	Continuous at 970Hz	106	19.9
	554 Hz for 100ms and 440Hz for 400ms	97	14.5
	Intermittent 660Hz 150ms on / 150ms off	93	14.7
	Intermittent 600Hz 1.8 sec. on / 1.8 sec. off	96	12.5
	Intermittent 600Hz 6.5 sec. on / 13 sec. off	96	12.9
	Continuous 660Hz	95	15.0
	Alternating 554 / 440Hz at 1Hz	100	14.7
	Intermittent 660Hz at 1Hz	95	13.1
	Intermittent 2850Hz 500ms on / 500ms off	111	16.1
	Sweep 800- 970Hz at 50Hz	98	17.7
	Sweep 2400 - 2850Hz 500ms on / 500ms off	109	33.7
	Intermittent 970Hz 500ms on 500ms off	102	13.0
	Intermittent 2850Gz 500ms on 250ms off	114	13.5
	Continuous at 4kHz	108	26.5
	Intermittent 400Hz 500ms on / 250ms off	98	14.2
	Intermittent 400Hz 500ms on / 250ms off	95	13.5
	Sweeping 320 / 480Hz at 40Hz	95	14.0
	Intermittent 2kHz 200ms on / 500ms off	108	14.0

The Sounder 120 VAC Alarm

Part No. AH115A8R & AH115A8G

Designed for use with Ingram's Silence Module

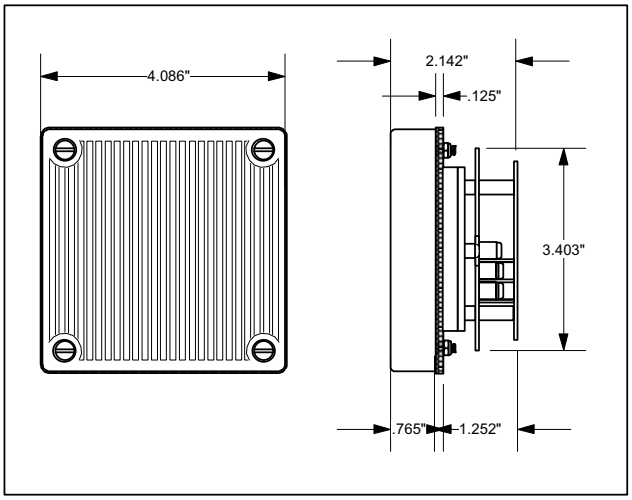
The Ingram 120 VAC Sounder is NEMA and UL Type 4X alarm horn suitable for heavy duty applications inside and outdoors. This horn features 8 user selectable alert sounds. Add quality to your control panel with the Ingram Sounder.

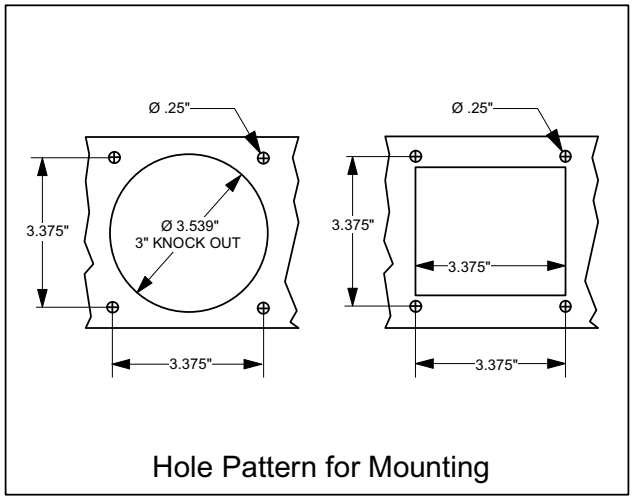
Features

- UL listed (E175530) for use in NEMA and UL Type 3, 3R, 4, 4X, 12 and 13
- Loud: 110+ decibels at 5 feet
- 8 user selectable alert sounds
- 2 user selectable sound output levels
- Low profile protrudes less than 1" from mounting surface
- Does not generate electrical noise due to piezo electronic sound element
- Self locking stainless steel hex nuts makes it tamper resistant
- Highly reliable solid state circuitry

Technical Specifications

- Voltage: AH115A8R, AH115A8G - 115 VAC
- Average current draw: 50 mA @ 120 VAC
- Ambient operating temperature: -40°F - 151°F
- Maximum humidity of 98% RH±2%
- Each wire screw clamp terminal will accept two #18AWG - #12AWG wires.
- 3 year warranty
- Available in red or gray





Hole Pattern for Mounting

⚠ **WARNING:** Do not operate this device within 15 inches of a person's ear. Exposure to such high sound level can result in permanent damage to a persons hearing.

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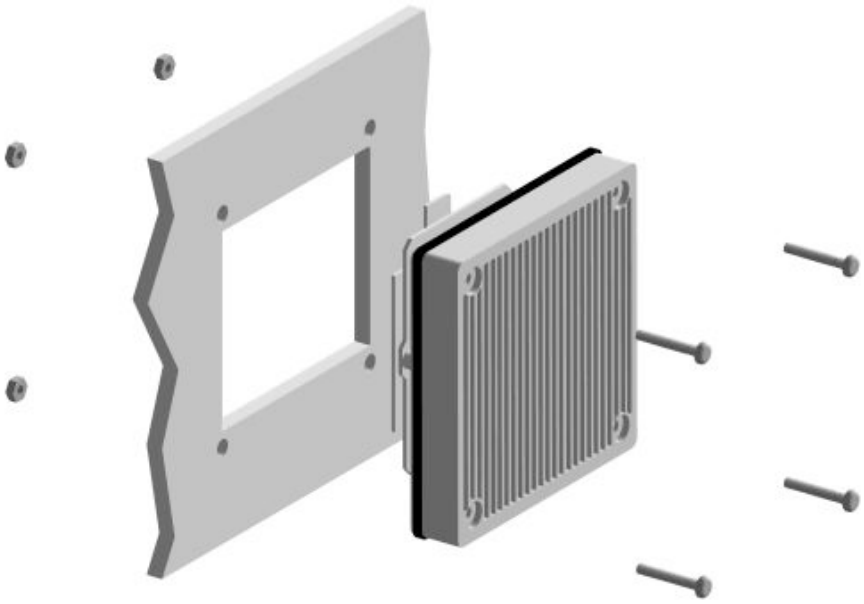


Assembly

To Set Desired DBA Sound Output Level:

 SWITCH SETTING

 High Level Output (factory settings)

 Standard Level Output

To Set Desired Alarm tone:

 Horn

 Bell

 Siren

 Hi/Lo

 March Time Horn

 Code 3 Horn

 Code 3 Tone

 Slow Whoop

Note: The code-3 Horn and Tone alert sounds are reserved for emergency evacuation signaling. They should not be used for any other purpose!

The Sounder 12/24 VDC Alarm

Part No. AH1224D8G (gray), AH1224D8R (red)

Designed for use with Ingram's Silence Module

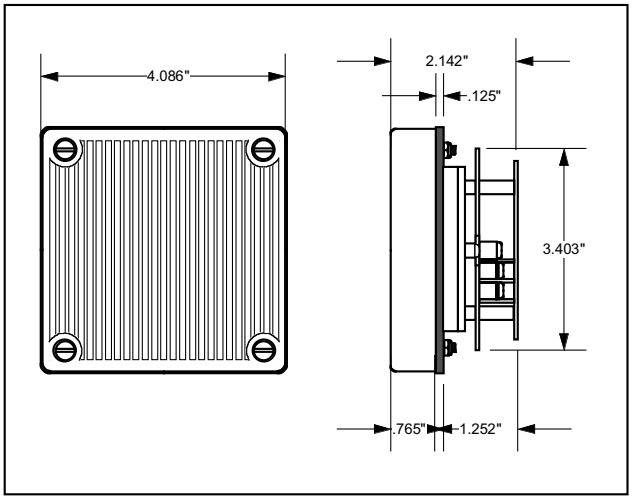
The Ingram AH1224D8G and AH1224D8R are NEMA and UL Type 4X alarm horn suitable for heavy duty applications inside and outdoors. This horn features 8 user selectable alert sounds and can be used with 12 or 24 Volts DC. Add quality to your control panel with the Ingram Sounder.

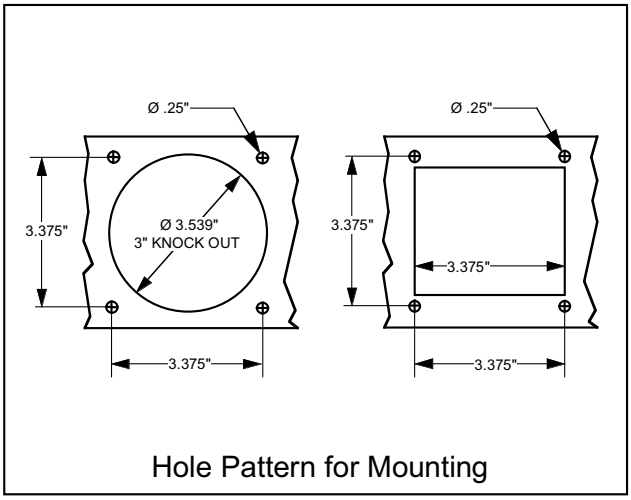
Features

- UL listed (E175530) for use in NEMA and UL Type 3, 3R, 4, 4X, 12 and 13
- Loud: 110+ decibels at 5 feet
- 8 user selectable alert sounds
- 2 user selectable sound output levels
- Low profile protrudes less than 1" from mounting surface
- Does not generate electrical noise due to piezo electronic sound element
- Self locking stainless steel hex nuts makes it tamper resistant
- Highly reliable solid state circuitry

Technical Specifications

- Voltage: 12/24 VDC
- Average current draw: 167mA @ 12VDC
  108 mA @ 24VDC
- Ambient operating temperature: -40°F - 151°F
- Maximum humidity of 98% RH±2%
- Each wire screw clamp terminal will accept two #18AWG - #12AWG wires.
- 3 year warranty
- Available in Red or Gray

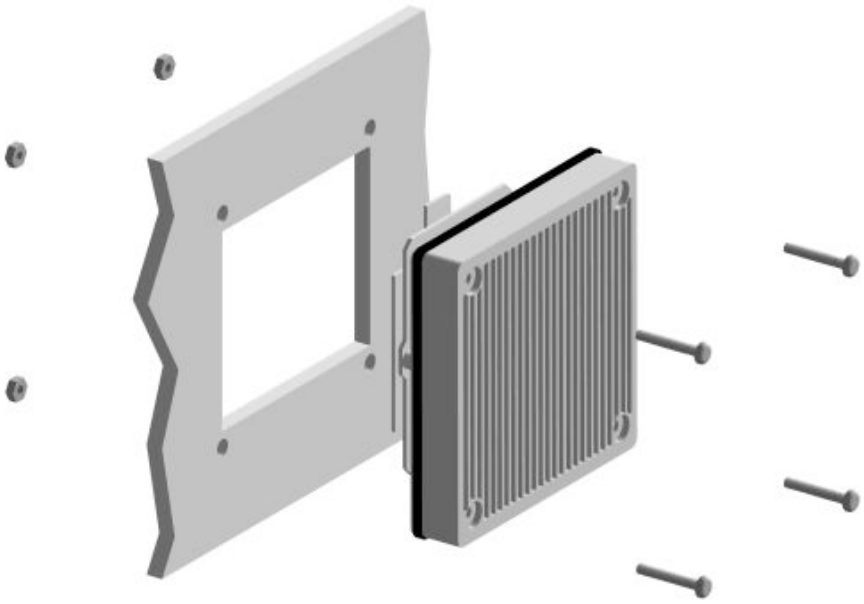




Hole Pattern for Mounting

⚠ **WARNING:** Do not operate this device within 15 inches of a person's ear. Exposure to such high sound level can result in permanent damage to a persons hearing.

8725 Youngerman Court Suite 206 Jacksonville, FL 32244 ■ 888-875-2221 ph (904)778-2444 fax ■ Website:www.ingramproducts.com ■ e-mail: info@ingramproducts.com



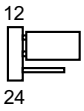
Assembly

To Set Desired DBA Sound Output Level:

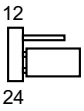

High Level Output (factory settings)
Set Switch 1 To On Position


Standard Level Output
Set Switch 1 To Off Position

Jumper Settings To Select 12 or 24 VDC



12 VDC



24VDC

To Set Desired Alarm tone:


Horn


March Time Horn


Bell


Code 3 Horn


Siren


Code 3 Tone


Hi/Lo


Slow Whoop

Note: The code-3 Horn and Tone alert sounds are reserved for emergency evacuation signaling. They should not be used for any other purpose!

AC-DC Power Supply

Part No. See Chart

Features

*UL 508 Listed
*UL Class 2 output
*Potentiometer for volt adjustment
*Only 7/8 inch wide
*AC/DC Power module
*Small footprint
*High efficiency - up to 77%
*Automatic short circuit protection
*Automatic overload protection
*Internal input filter
*Power Rdy: output on 24VDC models
*Red LED: DC low indicator
*Din rail mounting clip included

Old Model No.	New Model No.	Input Voltage	Output Wattage	Output Voltage	Output Current	Eff. (Typ.)
Single Output Models						
PSD05-05	PSD05-05	85~264 VAC	5 WATTS	5 VDC	1.00 Amp	68%
PSD05-12	PSD05-12	85~264 VAC	5 WATTS	12 VDC	.42 Amps	72%
PSD05-15	PSD05-15	85~264 VAC	5 WATTS	15 VDC	.34 Amps	72%
PSD05-24	PSD05-24	85~264 VAC	5 WATTS	24 VDC	.21 Amps	72%
PSD10-05	PSD10-05	85~264 VAC	10 WATTS	5 VDC	2.00 Amps	72%
PSD10-12	PSD10-12	85~264 VAC	10 WATTS	12 VDC	.84 Amps	74%
PSD10-15	PSD10-15	85~264 VAC	10 WATTS	15 VDC	.67 Amps	75%
PSD18-05	PSD18-05	85~264 VAC	15 WATTS	5 VDC	3.00 Amps	72%
PSD18-12	PSD18-12	85~264 VAC	18 WATTS	12 VDC	1.50 Amps	74%
PSD18-15	PSD18-15	85~264 VAC	18 WATTS	15 VDC	1.20 Amps	75%
PSD18-24	PSD18-24	85~264 VAC	18 WATTS	24 VDC	.75 Amps	77%

Specifications

*__Switching frequency__: > 100kHz
*__Isolation voltage:__ 3,000VAC
*__Isolation resistance__: 100MΩ (min.)
*__Operating ambient temperature:__ -10° to +50°C
*__Storage temperature:__ -25° to +85°C
*__Relative humidity:__ 20% to 95% RH
*__Cooling:__ free air convection
*__Transient recovery time:__
DRA05 Series - 300μ seconds
DRA10 Series - 500μ seconds
DRA18 Series - 1000μ seconds
All - 50% load step change
*__Temperature coefficient:__ 0.02% °C
*__Dimension:__ 4.53 x 3.60 x 0.87in (115 x 90 x 22.5mm)
*__Approvals__: c UL us LISTED : UL508 Listed, UL1950, UL1310
UL File No. E196362, E231718
TUV: EN60950
CE: EN50081-1 / EN55022 for EMI
EN50082-1 / EN55024 for EMS
FCC: Class B

Input

*__Input voltage range / frequency:__
85 ~ 264 VAC / 47 ~ 63 Hz
*__Max. Input voltage:__ 265 VAC
*__Inrush current:__ <10A @ 110VAC
<18A @ 230 VAC
*__Input fuse:__ T2A / 250 VAC

Output

*__Output voltage accuracy:__ ±1% @ Vo_nom
*__Output overload:__ 110~135%
*__Line regulation:__ ±1% @ Vo_nom
*__Load regulation:__ ±2% @ Vo_nom
*__Ripple & noise:__ 100mV (max.)
*__Efficiency:__ up to 77%, see model list
*__Case material:__ plastic
*__DC ok indicator:__ green LED
*__DC low indicator:__ red LED

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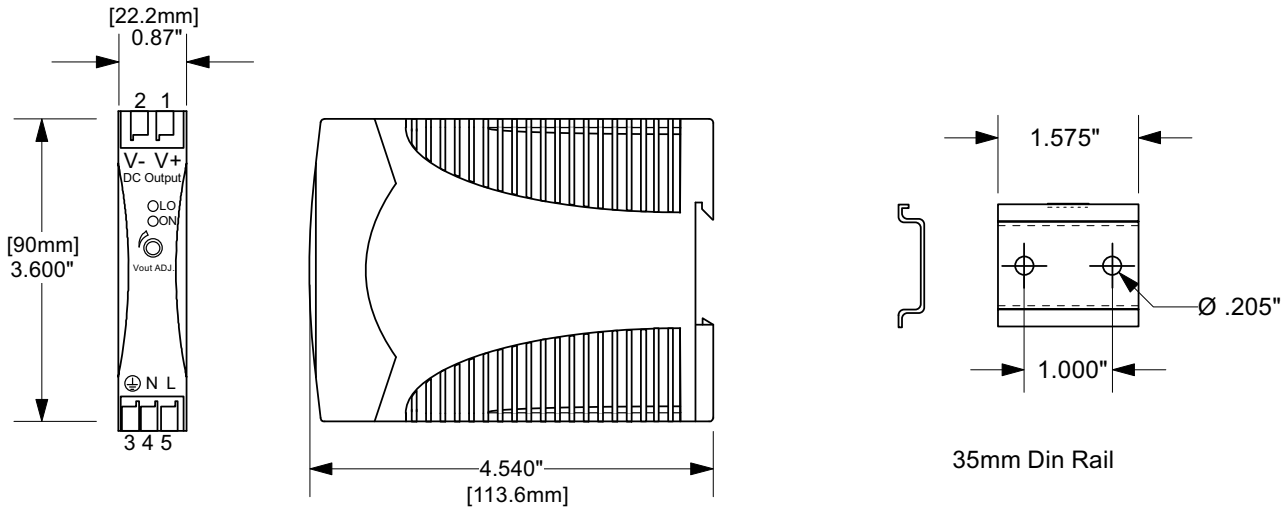


PIN ASSIGNMENT

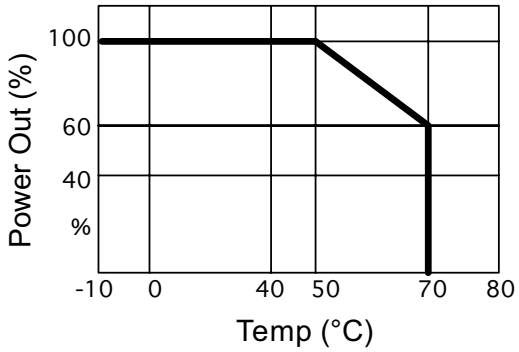
PIN NO.	Designation		Description
1	OUT	V+	Positive output terminal
2		V-	Negative output terminal
3	IN	⏚	Ground this terminal to minimize high-frequency emissions
4		N	Input terminals (neutral conductor, no polarity at DC input)
5		L	Input terminals (phase conductor, no polarity at DC input)
	OTHER	ON	Operation indicator LED
		LO	DC LOW indicator LED
		Vout Adj.	Adjustable -10 to +15%

CONSTRUCTION
Enclosed plastic housing with fine ventilation grid. Easy snap-on mounting onto the 35mm DIN-Rail. Unit sits safely and firmly on the rail; no tools required even to remove.

INSTALLATION
Ventilation / Cooling: Normal convection above/below 25mm free space for cooling recommended.

Connector size range: solid : 0.2-2.0mm (AWG24-14)

DERATING



AC-DC Power Supply

Part No.: See Chart

Features

*UL 508 certified
UL Class 2 output
*Potentiometer for volt adjustment
*AC/DC Power module
*Small footprint
*High efficiency - up to 85%
*Power Rdy: output on 24VDC models
*Automatic short circuit protection
*Automatic overload protection
*Internal input filter
*Din rail mounting clip included

Old Model No.	New Model No.	Input Voltage	Output Wattage	Output Voltage	Output Current	Eff. (Typ.)
Single Output Models						
PSD30-05	DRA30-05	85~264 VAC	30 Watts	5 VDC	6.00 Amps	79%
PSD30-12	DRA30-12	85~264 VAC	30 Watts	12 VDC	2.50 Amps	81%
PSD30-24	DRA30-24	85~264 VAC	30 Watts	24 VDC	1.25 Amps	84%
PSD30-48	DRA30-48	85~264 VAC	30 Watts	48 VDC	.625 Amps	83%
PSD60-05*	DRA60-05*	85~264 VAC	50 Watts	5 VDC	10.00 Amps	80%
PSD60-12*	DRA60-12*	85~264 VAC	60 Watts	12 VDC	5.00 Amps	84%
PSD60-24*	DRA60-24*	85~264 VAC	60 Watts	24 VDC	2.50 Amps	86%
PSD60-48*	DRA60-48*	85~264 VAC	60 Watts	48 VDC	1.25 Amps	86%

* Output not UL Class 2 on model DRA60-05A

c UL us LISTED

Specifications

*__Switching frequency__: > 55kHz
*__Isolation voltage:__ 3,000VAC
*__Isolation resistance__: 100M Ω (min.)
*__Operating ambient temperature:__ 50°C
*__Storage temperature:__ -25° to +85°C
*__Max. case temperature:__ 65°C
*__Relative humidity:__ 9O% RH
*__Cooling:__ free air convection
*__Transient recovery time:__ 300µ seconds, 50% load step change
*__Temperature coefficient:__ 0.02% / °C
*__Dimension:__ 4.53 x 3.54 x 1.59 in (115 x 90 x 40.5mm)
*__Approvals__: UL508 Certified UL 1950, UL1310
UL File No. E196362, E190717
CE: EN550022 for EMI
EN55024 for EMS

Input

*__Input voltage range / frequency:__
85 ~ 264VAC / 47 ~ 63Hz
*__No load input current:__ 10mA
*__Max. Input voltage:__ 265VAC
*__Inrush current:__ <21 A @ 115VAC
<42 A @ 230VAC
__Input fuse:__ T2A / 250VAC

Output

*__Output voltage accuracy:__ ±1% @ Vo_nom
*__Output overload:__ 105~125%
*__Line regulation:__ ±0.2% @ Vo_nom
*__Load regulation:__ ±0.3% @ Vo_nom
*__Ripple & noise:__ 50mV (max.) @ full load
*__Efficiency:__ up to 86%, see model list
*__Case material:__ plastic
*__DC ok indicator:__ green LED

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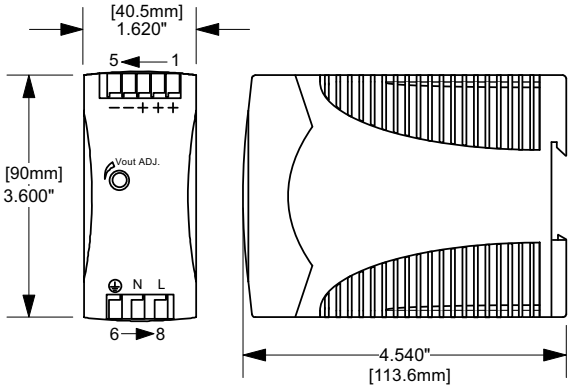
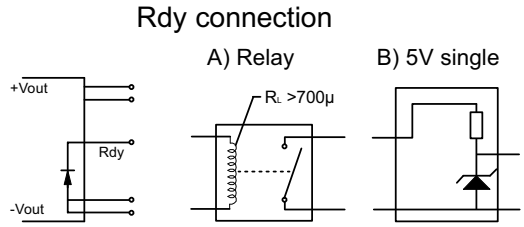


fig. 1



PIN ASSIGNMENT

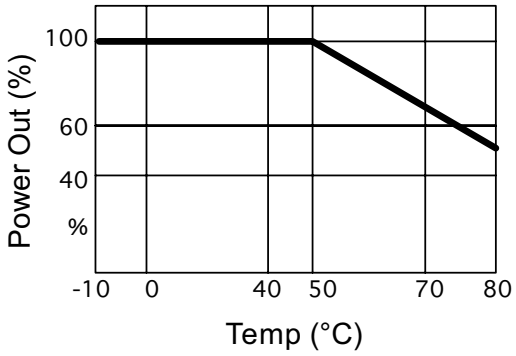
PIN NO.	Designation		Description
1	OUT	RDY	DC OK output for relay (not connect except 24V model)
2		+	Positive output terminal
3		+	Positive output terminal
4		-	Negative output terminal
5		-	Negative output terminal
6	IN	⏚	Ground this terminal to minimize high-frequency emissions
7		N	Input terminals (neutral conductor, no polarity at DC input)
8		L	Input terminals (phase conductor, no polarity at DC input
	OTHER	Vout Adj.	Adjustable -10 to +15%
		DC OK	Operation indicator LED

CONSTRUCTION
Enclosed plastic housing with fine ventilation grid. Easy snap-on mounting onto the 35mm DIN-Rail. Unit sits safely and firmly on the rail; no tools required even to remove.

INSTALLATION
Ventilation / Cooling: Normal convection above/below 25mm free space for cooling recommended.

Connector size range: solid : 0.2-2.0mm (AWG24-14)

DERATING



AC-DC Power Supply

Features

*UL 508 certified
*Potentiometer for volt adjustment
*AC/DC Power module
*Power Rdy output contact on 24 volt models
*Internal input filter
*Automatic short circuit protection
*Automatic overload protection
*Small footprint
*High efficiency - up to 86%
*Din rail mounting clip included

Old Model No.	New Model No.	Input Voltage	Output Wattage	Output Voltage	Output Current	Eff. (Typ.)	Eff. (Min.)
Single Output Models							
PSD120-12SPA	DRA120-12SPA	115~230 VAC	120 Watts	12 VDC	10.00 Amps	84%	82%
PSD120-24SPA	DRA120-24SSA	115~230 VAC	120 Watts	12 VDC	5.00 Amps	86%	84%

Specifications

*__Switching frequency__: ≥ 80kHz
*__Isolation voltage:__ 3,000VAC
*__Isolation resistance__: 100M Ω (min.)
*__Operating ambient temperature:__ -10° to +50°C
*__Storage temperature:__ -25° to +80°C
*__Max. case temperature:__ 65°C
*__Relative humidity:__ 20% to 9O% RH
*__Cooling:__ free air convection
*__Transient recovery time:__ 300µ seconds, 50% load step change
*__Temperature coefficient:__ ±0.02% / °C
*__Dimension:__ 4.9 x 2.5 x 5 in (125 x 63.5 x 126mm)
*__Approvals__: : UL508 Certified UL 1950
UL File No. E196362
CE: EN50081-1
EN50082-2
EN61000-4-X where x may be 3,4,5,6,8

Input

*__Input voltage range / frequency:__
115 ~ 230VAC / 47 ~ 63Hz
*__Input voltage__: switch selectable
__115VAC__: 93VAC min. 132VAC max
__230VAC__: 186VAC min. 264VAC max
*__Inrush current:__ <24 A @ 115VAC
<48 A @ 230VAC
__Input fuse:__ T4A / 250VAC

Output

*__Output voltage accuracy:__ ±1% @ Vo_nom
*__Output overload:__ 105~125%
*__Line regulation:__ ±0.5% @ Vo_nom
*__Load regulation:__ ±1% @ Vo_nom
*__Ripple & noise:__ 50mV (max.) @ full load
*__Efficiency:__ up to 86%, see model list
*__Case material:__ metal
*__DC on indicator:__ green LED
*__DC low indicator__: red LED

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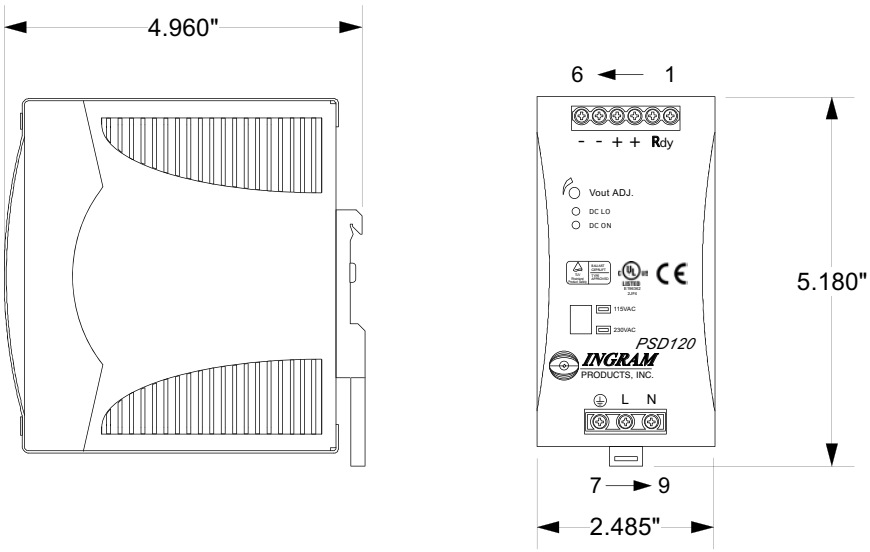


PIN ASSIGNMENT

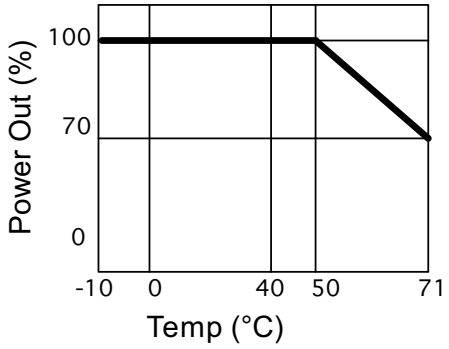
PIN NO.	Designation		Description
1	OUT	RDY	DC ON output for relay
2			Do not connect except 24V model
3		+	Positive output terminal
4		+	Positive output terminal
5		-	Negative output terminal
6		-	Negative output terminal
7	IN	⏚	Ground this terminal to minimize high-frequency emissions
8		L	Input terminals (phase conductor, no polarity at DC input
9		N	Input terminals (neutral conductor, no polarity at DC input)
	OTHER	DC ON	Operation indicator LED
		DC LO	DC LOW voltage indicator LED
		Vout Adj.	12SPA 11.4 - 14.5 VDC 24SPA 22.5 - 30VDC
		115/230	Input voltage selection switch

CONSTRUCTION
Enclosed metal housing with fine ventilation grid. Easy snap-on mounting onto the 35mm DIN-Rail. Unit sits safely and firmly on the rail; no tools required even to remove.

INSTALLATION
Ventilation / Cooling: Normal convection above/below 25mm free space for cooling recommended.

Connector size range: solid : 10-24AWG

DERATING



AC-DC Power Supply

Part No.: See Chart

Features

*UL 508 certified
*Potentiometer for volt adjustment
*AC/DC Power module
*Power Rdy output contact on 24 volt models
*Internal input filter
*Automatic short circuit protection
*Automatic overload protection
*Small footprint
*High efficiency - up to 89%
*Din rail mounting clip included

Old Model No.	New Model No.	Input Voltage	Output Wattage	Output Voltage	Output Current	Eff. (Typ.)	Eff. (Min.)
Single Output Models							
PSD240-24	DRA240-24A	115~230 VAC	240 Watts	24 VDC	10.00 Amps	89%	87%
PSD240-24B	Discontinued	115~230 VAC	240 Watts	24 VDC	10.00 Amps	89%	87%
PSD240-48A	Discontinued	115~230 VAC	240 Watts	48 VDC	5.00 Amps	90%	88%
PSD240-48B	Discontinued	115~230 VAC	240 Watts	48 VDC	5.00 Amps	90%	88%

c UL us LISTED

Specifications

***Isolation voltage:** 3,000VAC
***Isolation resistance**: 100M Ω (min.)
***Operating ambient temperature:** -10° to +50°C
***Storage temperature:** -25° to +85°C
***Max. case temperature:** 65°C
***Relative humidity:** 20% to 9O% RH
***Cooling:** free air convection
***Transient recovery time:** 300µ seconds, 50% load step change
***Temperature coefficient:** ±0.03% / °C
***Dimension:** 4.9 x 3.3 x 5 in (125 x 83 x 126mm)
***Approvals**: c UL us LISTED : UL508 Listed
UL File No. E196362
CE: EN61000-6-3
EN61000-6-2
EN61000-4-X where x may be 3,4,5,6,11

Input

***Input voltage range / frequency:**
115 ~ 230VAC / 47 ~ 63Hz
***Input voltage**: Auto select
115VAC: 93VAC min. 132VAC max
230VAC: 186VAC min. 264VAC max
***Inrush current:** <24 A @ 115VAC
<48 A @ 230VAC
Input fuse: T6.3A / 250VAC internal

Output

***Output voltage accuracy:** ±1% @ Vo_nom
***Output overload:** 105~145%
***Line regulation:** ±0.5% @ Vo_nom
***Load regulation:** ±1% @ Vo_nom
***Ripple & noise:** 100mV (max.) @ full load
***Efficiency:** up to 90%, see model list
***Case material:** metal
***DC on indicator:** green LED
***DC low indicator**: red LED

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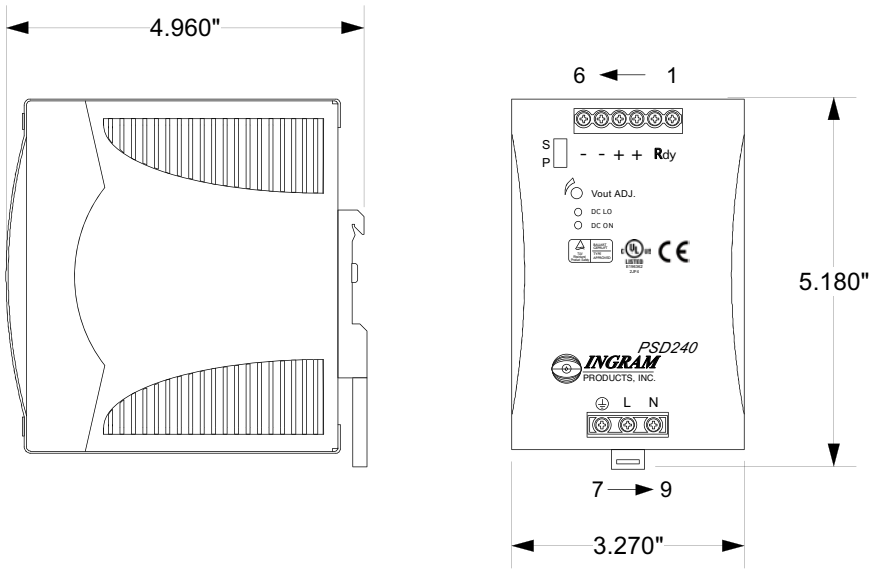


PIN ASSIGNMENT

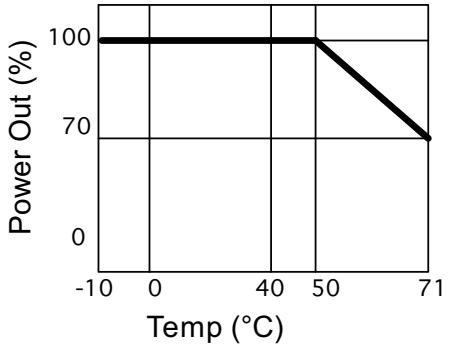
PIN NO.	Designation		Description
1	OUT	RDY	A normal open relay contact for DC ON level control
2			Do not connect except 24V model
3		V+	Positive output terminal
4		V+	Positive output terminal
5		V-	Negative output terminal
6		V-	Negative output terminal
7	IN	⏚	Ground this terminal to minimize high-frequency emissions
8		L	Input terminals (phase conductor, no polarity at DC input
9		N	Input terminals (neutral conductor, no polarity at DC input)
	OTHER	DC ON	Operation indicator LED
		DC LO	DC LOW voltage indicator LED
		Vout Adj.	Trimmer-potentiometer for Vout adjustment
		S / P	Single / Parallel select switch

CONSTRUCTION
Enclosed metal housing with fine ventilation grid. Easy snap-on mounting onto the 35mm DIN-Rail. Unit sits safely and firmly on the rail; no tools required even to remove.

INSTALLATION
Ventilation / Cooling: Normal convection above/below 25mm free space for cooling recommended.

Connector size range: solid : 10-24AWG

DERATING



UL Class 2 Transformer

Part No. 50313OF-12

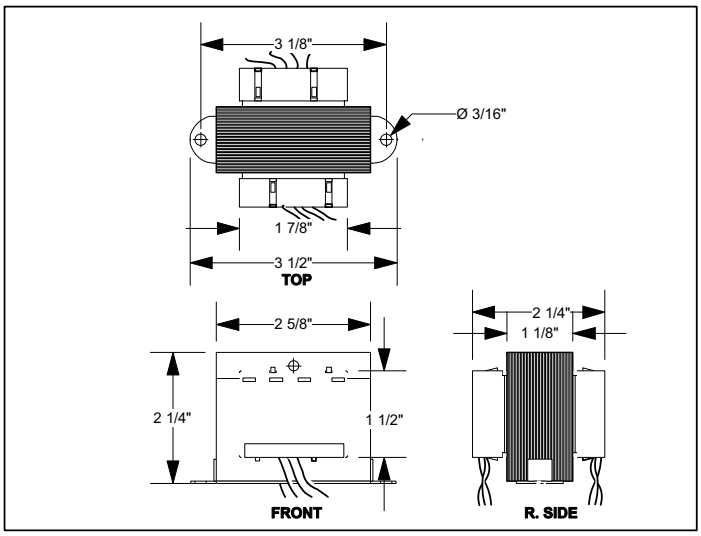
The Ingram UL Class 2 Transformer is a multi-tapped primary, dual winding secondary transformer allowing operation at 3 input and two output voltages. It employs PTC (positive temperature coeffient) auto resettable fuse technology to protect it from overload conditions. The PTC device effectively opens during the overload, then resets after the undesirable condition has been removed. These transformers are indespensible wherever low voltage supplies are needed.

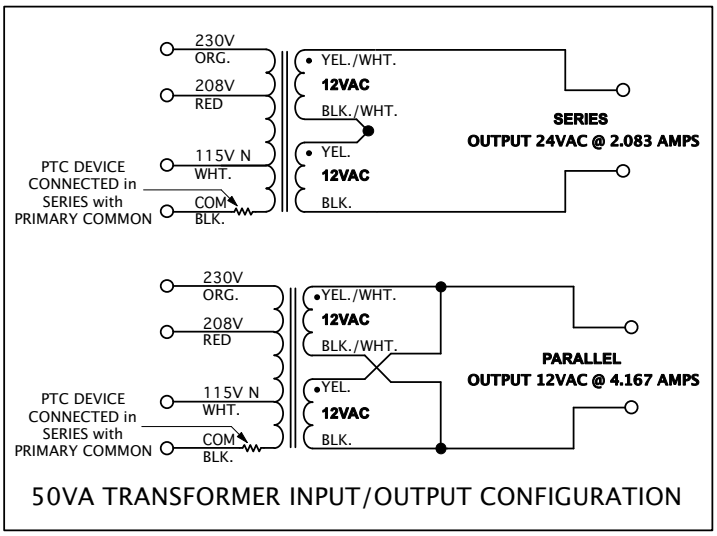
Features

- Operates at one of three input voltages: 115, 208, or 230VAC
- Two configurable output voltages: 12 and 24VAC
- PTC (Auto resetting fuse) protects transformer from damaging overload currents

Technical Specifications

- Input voltages: 115/208/230 VAC
- Output voltages: 12 or 24VAC @ 50VA
- Max current output: 2.083A @ 24VAC
  4.167A @ 12VAC
- Max. operating temp: 50˚C (ambient)
- Weight: 1.8 lbs.
- Laminated ferrite core





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5Ah Battery w/Charger

Part No. BB-1205AH

Ingram has the battery and charger you need for your battery backup application. This 12 volt dc, 5 Amp-hour battery will deliver the juice to keep your 12V system operating in the event of a power outage. It comes with a 12 Vdc charger to quickly recharge the battery or to maintain a float charge as needed.

Battery sold separately as B-1208AH.
12VDC charger sold separately as FLC-2207.
24VDC charger sold separately as FLC-2210.

Features

- Sealed lead acid design
- Constant voltage charge (at 25 C)
- Quick connect or solder terminals
- Two year warranty
- Comes with UL Listed FLC-2207 12Vdc charge

Technical Specifications

- 12 Volts DC
- 5 Amp-Hours Capacity
- Size: 4.0" High x 3.5" Wide x 2.75" Deep
- UL Recognized

8Ah Battery w/Charger

Part No. BB-1208AH

If you need a battery with even more staying power, check out Ingram's 12 volt dc, 8 Amp-hour battery and charger. Comes with our 12 Vdc charger to quickly recharge the battery or to maintain a float charge as needed. For greater voltage or current capabilities, see the figure below.

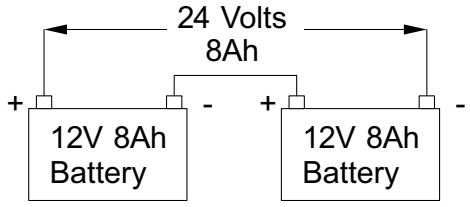
Battery sold separately as B-1208AH.
12VDC charger sold separately as FLC-2207.
24VDC charger sold separately as FLC-2210.

Features

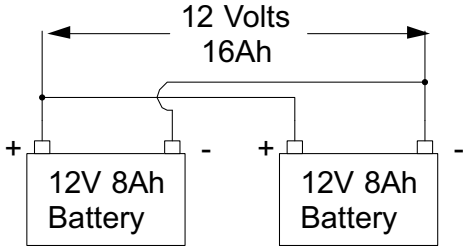
- Sealed lead acid design
- Constant voltage charge (at 25 C)
- Quick connect or solder terminals
- Two year warranty
- Comes with UL Listed FLC-2207 12Vdc charge

Technical Specifications

- 12 Volts DC
- 8 Amp-Hours Capacity
- Size: 3.75" High x 6.0" Wide x 2.5" Deep
- UL Recognized



Batteries in Series



Batteries in Parallel

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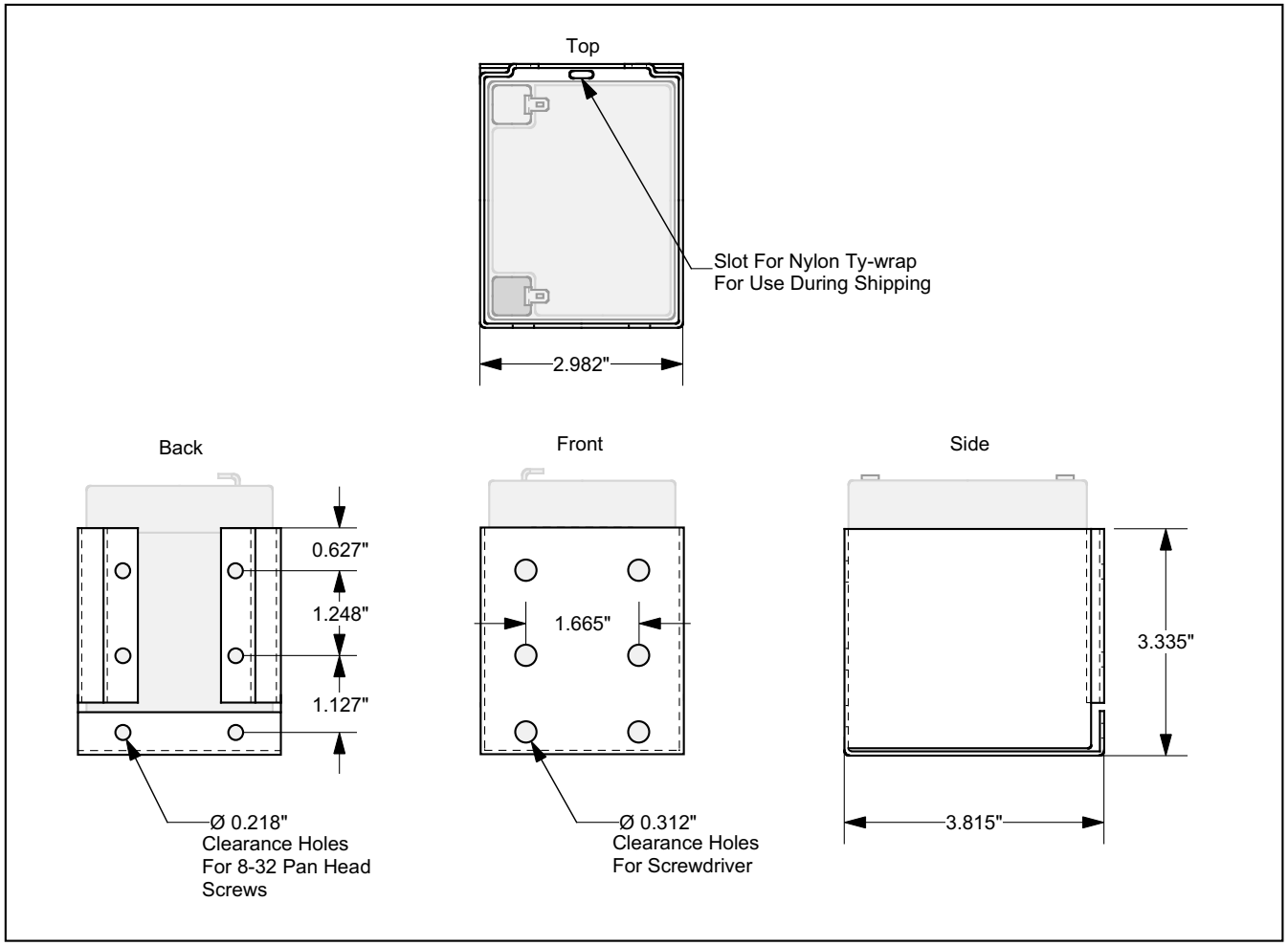
5Ah Battery Mounting Bracket

Part No.: MB1205AH



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5Ah Battery w/Charger

Part No. B-1205AH

Features

- Compact size
- Sealed lead acid battery
- Optional aluminum mounting bracket
- Quick connect or solderless terminals
- Two year warranty

Technical Specifications

- 12 Volt
- 5 Amp-hours
- UL Recognized
- CE approved

4"H x 3.5"W x 2.75"D

8Ah Battery w/Charger

Part No. B-1208AH

Features

- Compact size
- Sealed lead acid battery
- Quick connect or solderless terminals
- Two year warranty

Technical Specifications

- 12 Volt
- 8 Amp-hours
- UL Recognized
- CE approved

3.75"H x 6.0"W x 2.5"D

12V Charger

Part No. FLC-2207

Features

- Built-in, 120VAC polarized wall plug.
- Designed with safety in mind, including overcurrent protection and reversed polarity output protection.
- Bright LEDs indicate charging states: Fast Charge or Float/Power On.
- Comes with molded alligator clip power output cable. Easy screw/spade hookup.
- UL listed, FCC tested, CE registered.

Technical Specifications

Output voltage range: 10-15Vdc
Output current: 1A@12Vdc
Maximum output power: 14.5W
Fast charge current: 1A
Fast charge voltage: 14.7Vdc
Float charge voltage: 13.65
Light switching current: 160mA
Efficiency: 68%

24V Charger

Part No. FLC-2210

Features

- Same as above, except designed to operate at 24VDC.

Technical Specifications

Output voltage range: 20-30Vdc
Output current: 500mA@24Vdc
Maximum output power: 14.2W
Fast charge current: 500mA
Fast charge voltage: 29.4Vdc
Float charge voltage: 27.3Vdc
Light switching current: 85mA
Efficiency: 68%

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Thermostat

Part No. CTS, HTS

The Ingram CTS and HTS thermostats are designed to regulate and monitor air temperature. Use the HTS (heating thermostat) for panels designed with heaters. It closes as temperature drops. Use the CTS (cooling thermostat) for panels designed with fans, ventilators or air conditioner. It closes as temperature rises.

Using the Ingram CTS and HTS is an easy and low cost way to maintaining operating temperatures in enclosures.

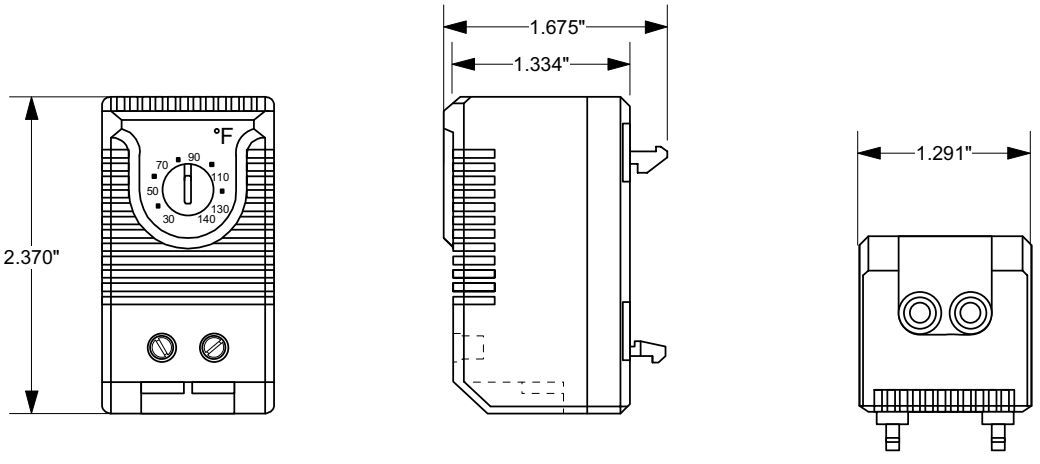
Features

- Small Size
- Easy 35mm din rail mounting
- Wide setting range
- Model CTS (cooling thermostat)
- Model HTS (heating thermostat)
- Heating thermostat closes as temperature decreases
- Cooling thermostat closes as temperature increase

Technical Specifications

- Sensor Type: Bimetal
- Mount: Din Rail
- Switching Capacity: 250 VAC 10A resistive
  120 VAC 15A resistive
- Set Range: 0°C (32°F) to 60°C (140°F)
- Connections: 2-pole terminal for AWG 14 max
- Housing: GE Lexan
- Weight: 40g
- Protection Type: Touch Safe
- Approvals: US UL Recognized
  Canadian UL Recognized

c UL us
E258620



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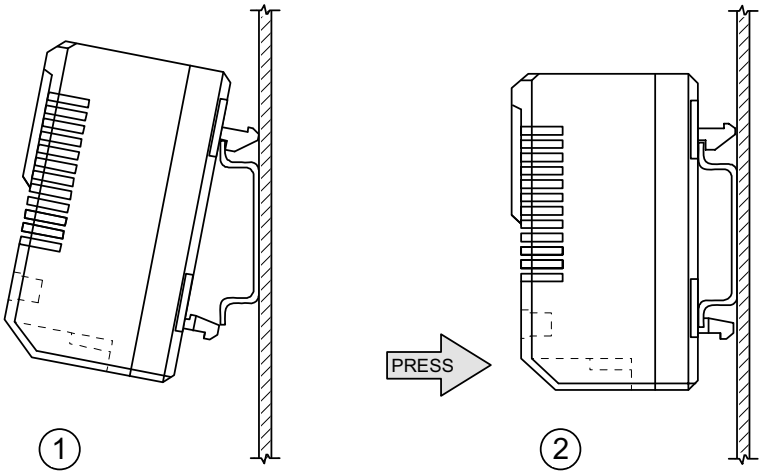
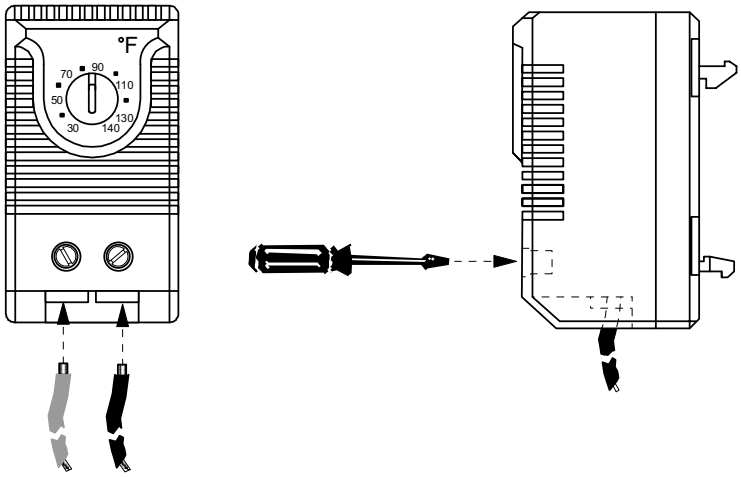
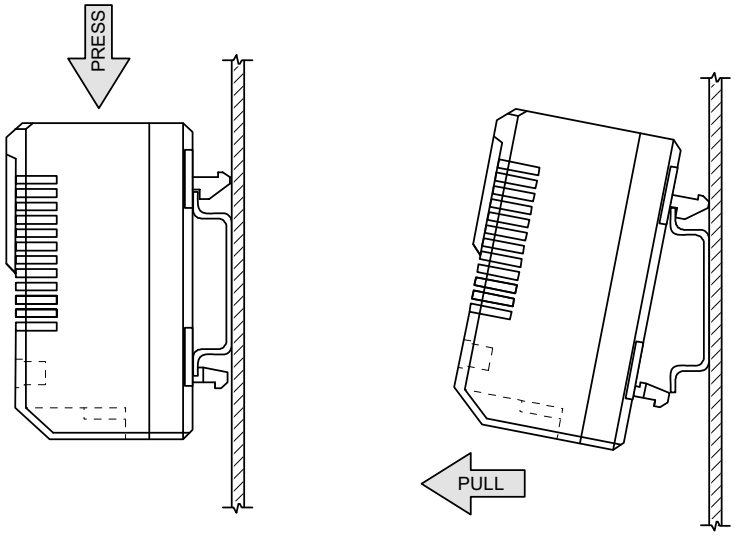
Thermostat Installation Instructions





Thermostat Removal Instructions



Anti-Condensation Heater

Models: AHC-15W, AHC-30W, AHC-35W, AHC-50W

The "AHC" touch safe series anti-condensation space heater is designed to keep the temperature inside of an enclosure several degrees above the external ambient temperature and above the dew point. Keep your electrical equipment on line by preventing corrosion due to condensation. Contact our engineering department for specifications for the proper AHC model used in other types of enclosures (Aluminum, Fiberglass, etc.).

Features

- There are no moving parts
- No thermostat to set or malfunction
- No adjustments are needed for ambient temperature changes
- Easy to install (connect two wires and insert two mounting screws)
- Compact size
- UL Recognized (E121431)
- Due to heat sink design, the max external surface temperature are "Touch Safe"

Technical Specifications

- Operating temperatures: -30˚C to 60˚C
- Watts: 15, 30, 35 or 50 per unit, depending on model
- Extruded black anodized aluminum
- Life expectancy-20 years
  Rated 120 VAC, output will vary with
- AC or DC voltage
- When possible, two smaller units are more efficient than one larger unit

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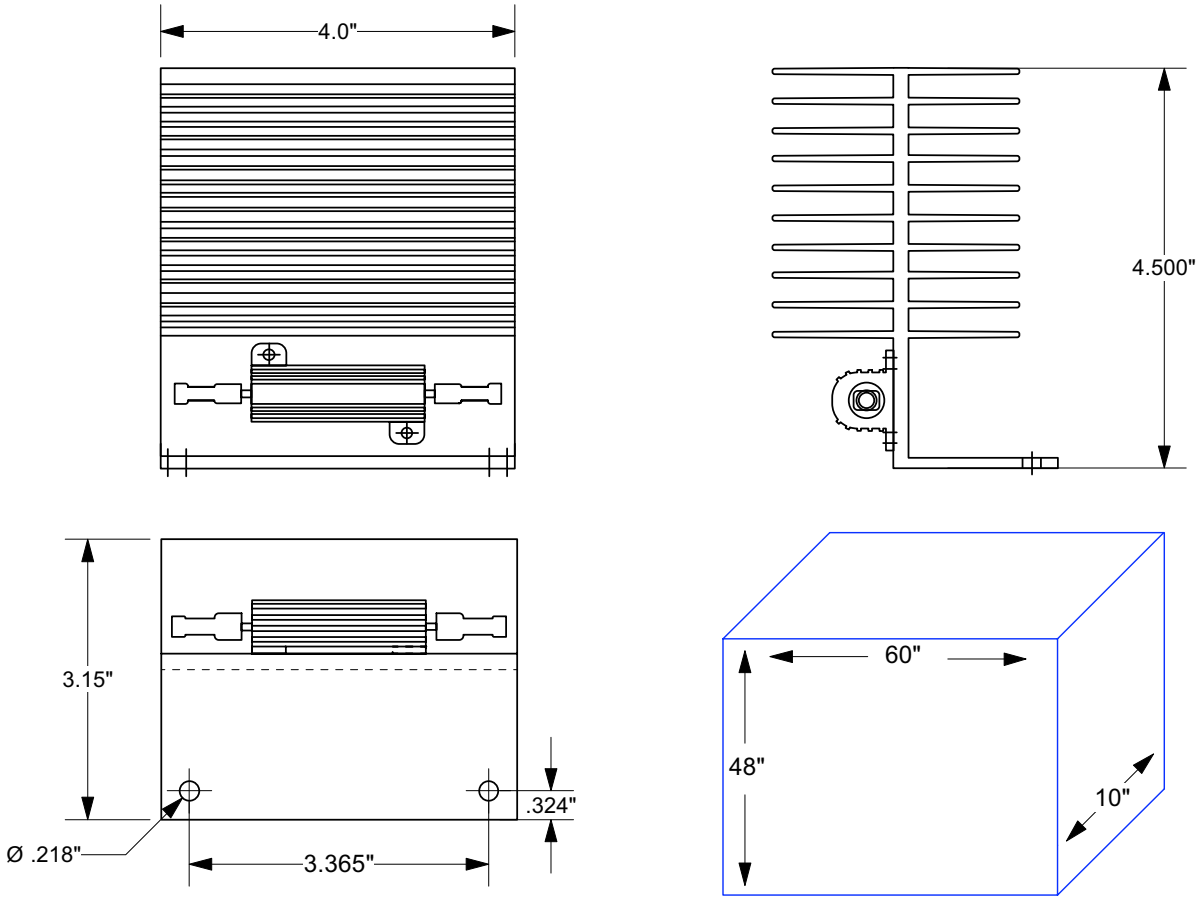


Fig. 1

MODEL SELECTION

0.7 watt of power per square foot is necessary to generate enough energy to raise the temperature of an enclosure 1˚F in a metallic enclosure. To prevent condensation, the enclosure should be 2˚ to 3˚F above the ambient air temperature. To determine total watts needed, it is first necessary to determine the total surface area of the enclosure, multiply by the amount of power needed to raise the temperature 1˚F (0.7W/ft) and then multiple by a factor equal to the number of degrees you wish to be above ambient. You can then use this total wattage to determine which model(s) you will need to obtain sufficient heating power. See example below.

Example: 60" x 48" x 10" metal enclosure (see Fig. 1)

To Determine Square Feet

Step 1: 60 x 48 = 2880 in^2. Front and back of box = 2880 x 2 = 5760
60 x 10 = 600 in^2. Top and bottom of box = 600 x 2 = 1200
48 x 10 = 480 in^2. Left & right sides of box = 480 x 2 = 960
7920 in. = Total area

Step 2: Convert square inches to square feet: 7920 / 144 = **55 Square Feet**

Step 3: Multiply total square feet by 0.7 55 x 0.7 = 38.5W to raise temperature 1˚F.

Step 4: Multiply by degree increase desired. 38.5W x 2 degrees = 77W; x 3 degrees = 115.5W
So, 77 to 116 watts would be needed. (80 to 120W is a good ball park estimate.)

Recommendation: The median power of this temperature range is 96 watts, so use two AHC 50W units.

Note: For non-metallic enclosures derate by around 50%. For above example, 40 - 60 watts is fine.

Mini Space Heater/Condensation Heater

INGRAM PRODUCTS, INC.

Part No.: MHS-15

The mini space heater is designed for interior enclosure where space is at a minimum, and a limited amount of heat is required. Use it to keep the temperature inside an enclosure several degrees above the external ambient temperature and above the dew point. Keep your electrical equipment on line by preventing corrosion due to condensation. Contact our engineering department for specifications for the proper AHC or MHS model used in other types of enclosures (Aluminum, Fiberglass, etc.).

Features

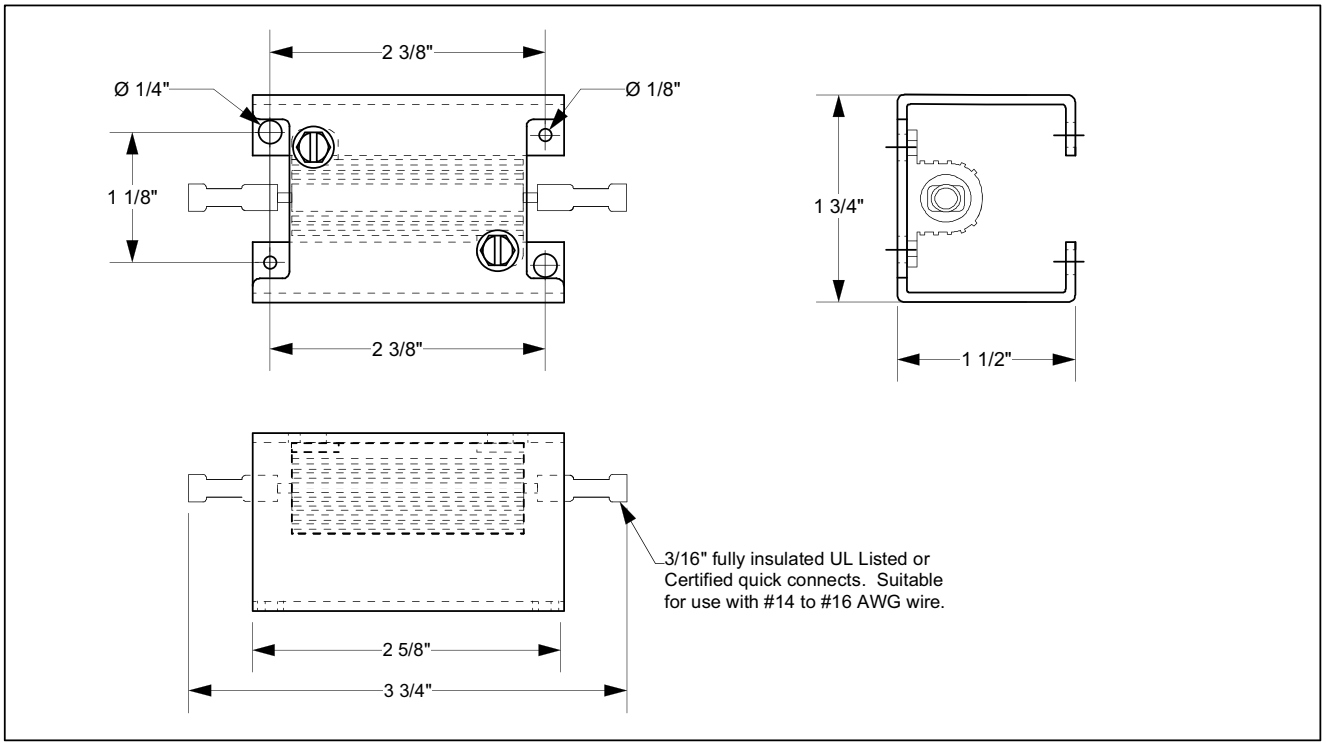
- There are no moving parts
- No thermostat to set or malfunction
- No adjustments are needed for ambient temperature changes
- Easy to install (connect two wires and insert two mounting screws)
- Compact size
- Made of heavy extruded irradited aluminum

Technical Specifications

- Operating temperatures: -30˚C to 60˚C
- Watts: 15 Watts @ 120VAC
- Life expectancy 10 years

Installation

1. Mount on steel or aluminum surface.
2. Unit should be mounted in vertical position about 25% off the bottom of the enclosure
3. Attach 120 VAC power to unit.



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TUF Pump II

Part No. BASCR30

Introducing Ingram's new bubbler system air supply. The TUF Pump II contains everything you need in an air supply for 0 to 10, 20, and 30 ft bubbler type level control. Simply adjust in the field for the level you need, following the instructions printed on the unit.

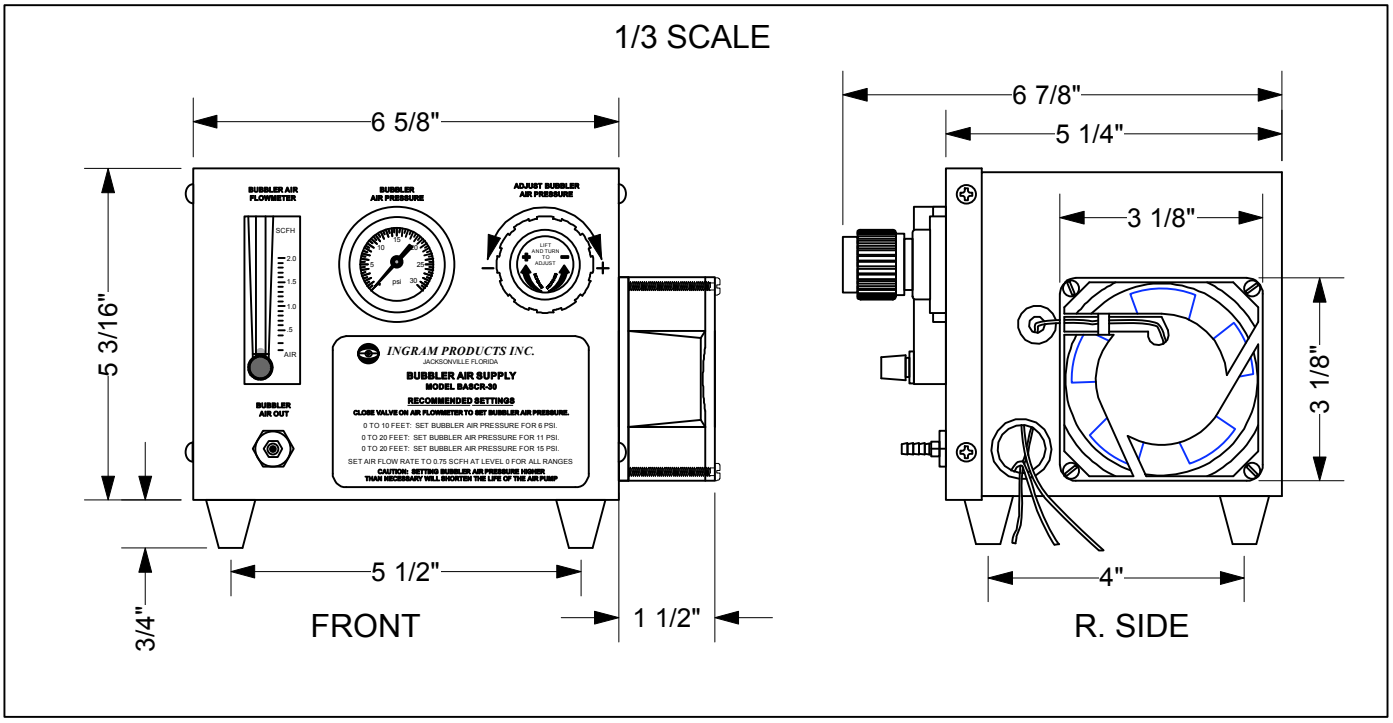
Features

- Oil-less, non-lube die cast aluminum pump* with thermal protection and built-in unloader
- Pressure gauge
- Adjustable flowmeter
- User adjustable for 0 to 10/20/30 ft. liquid levels
- Cooling fan for hot environments
- Comes with pre-assembled check valve, intake air filter, tees and barbed fittings
- All components mounted to sturdy brushed aluminum frame
- Comes with rubber feet for mounting on flat surfaces or can be fastened to panel with four #8-32 screws

Technical Specifications

- Voltage: 115VAC, 60Hz
- Current: 312 mA
- Power: 36.2 Watts
- Pump Motor: 4P, Condenser Run Type
- Thermal Protection: Auto reset @ 135˚C
- Ambient Temperature 0~50˚C
- Weight: 5.1 lbs. (2.3 kg)

* Replacement p/n NPV20P18M120A. See catalog for more details.



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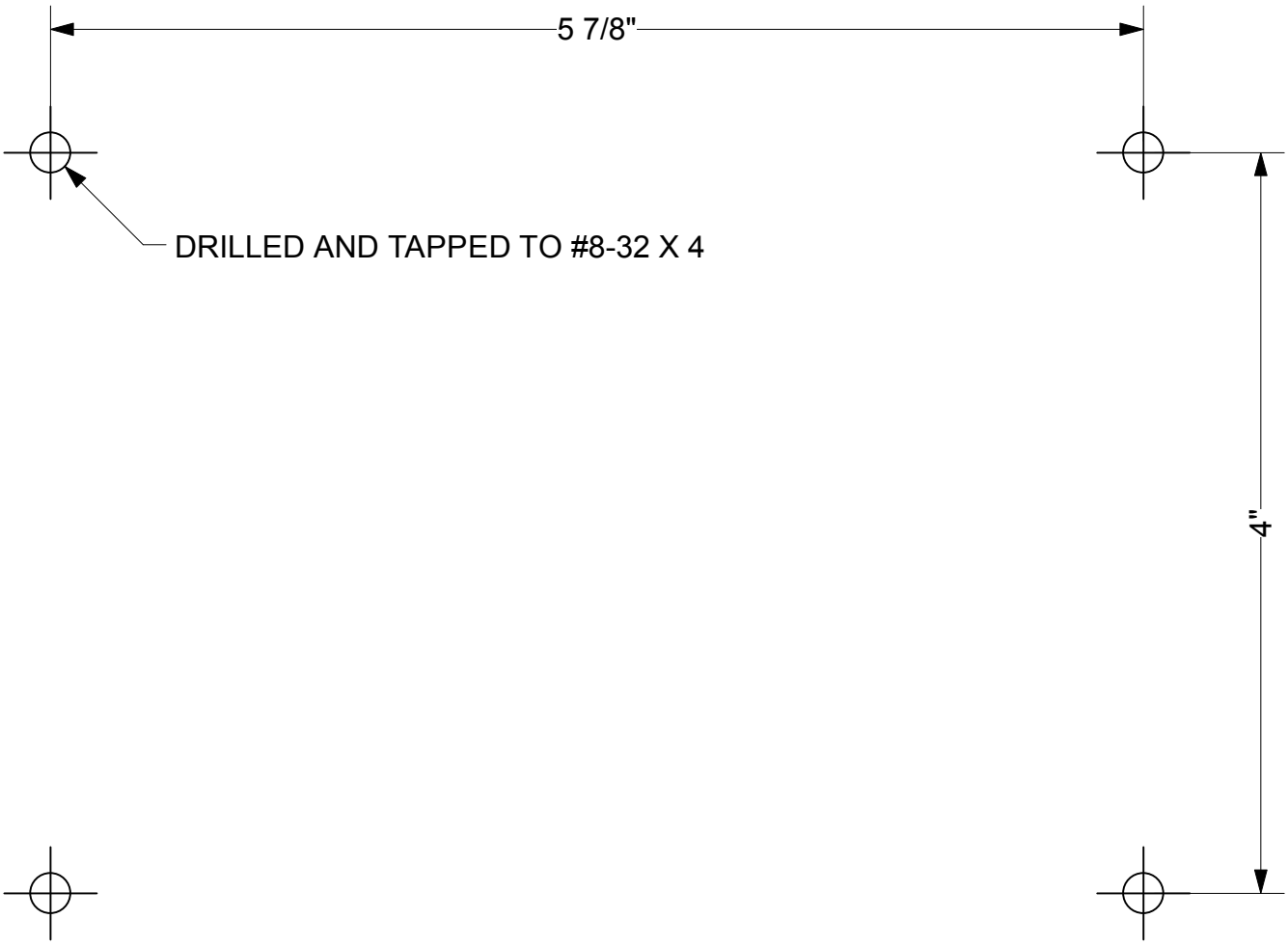


MOUNTING HOLE TEMPLATE

Air Compressor

Part No. HR10WB3

The HR10WB3 is designed for use with bubbler type liquid level control systems with a control range of 0-15 feet of water column.

Features

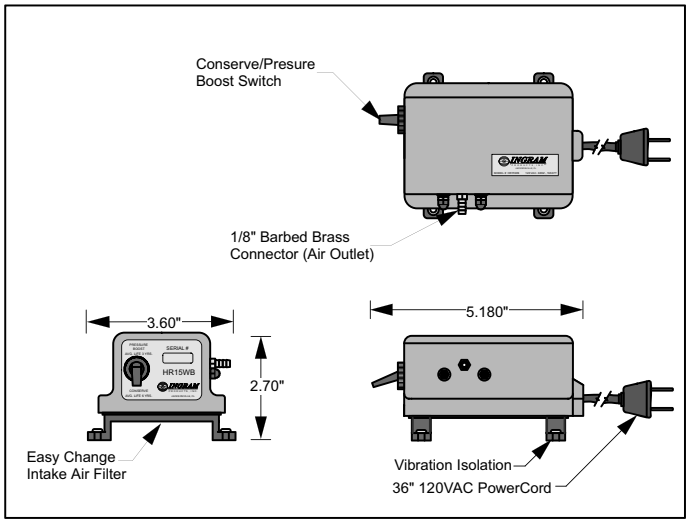
- One year warranty
- Rubber vibration isolation mounting feet provide quiet operation
- Oil free compressor never requires lubrication
- Features a two speed switch, pressure boost or conserve, which allows optimun flow/pressure settings
- Two replacement intake air filters included
- Low power consumption
- Corrosion resistant, aluminum panel mounting bracket sold separately: Part No. HRMTBKT

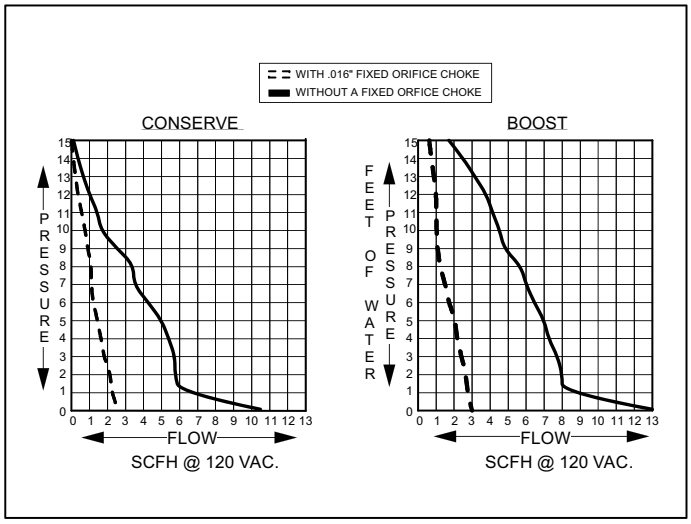
Technical Specifications

- 6W, 60Hz @ 120VAC

Accessories

- A fixed orifice choke with a .016" hole is available for use with air compressor to reduce airflow volume. (See graph on reverse side) Part No. IM-.016.
- The back check valve prevents fluid from getting back to your pump during shutdowns and power failure. Part No. P19CV0012NL.
- The 5 micron discharge air filter gives one final filtering of air before it goes out to your equipment. It will filter damaging dust particles from air supply. Part No. AP19FV0012P1L .





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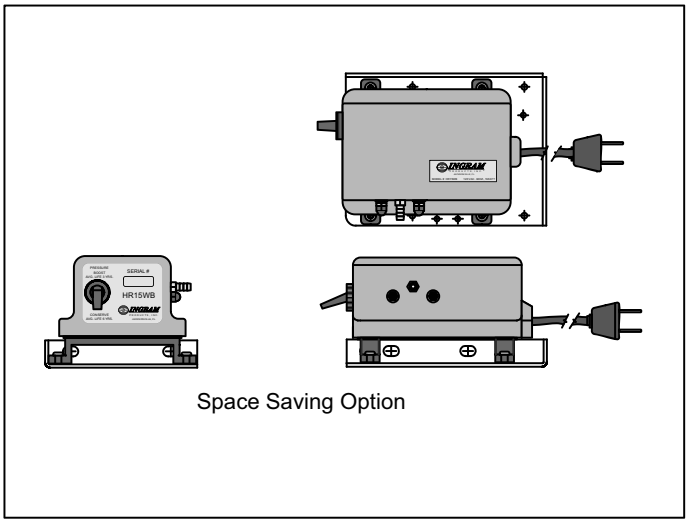
Mounting Bracket

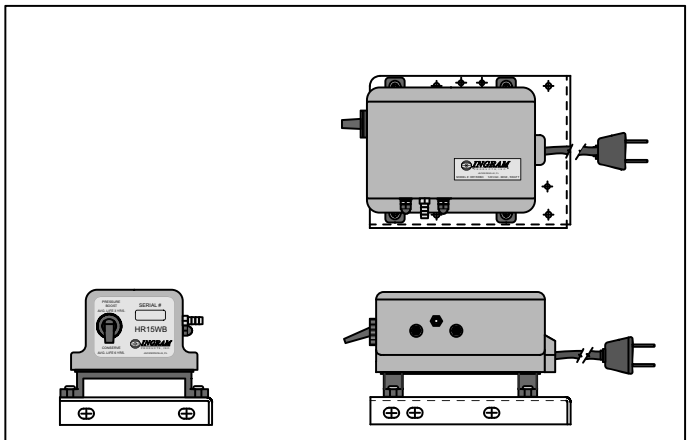
Part No.: HRMTBKT

Features / Technical Specifications

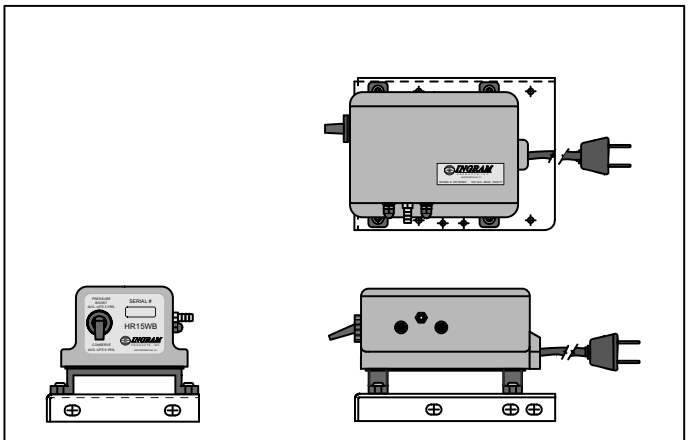
- Fits HR10WB3 & HR15WB pump
- Dimensions: 2.25 x 11.062 x .312
- Fabricated from 3003-H14 aluminum.
- Finish: Brushed with gold irridite
- Mounting: side or end
- Metal thickness: .080"
- Center hole allows for quick filter change



Space Saving Option



End Mounting Option



Side Mounting Option

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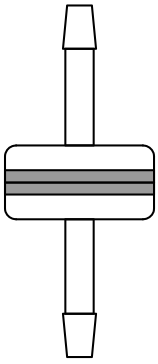
HR Pump Accessories

Part Nos. AP19FV0012P1L, AP19CV0012NL, IM-.016

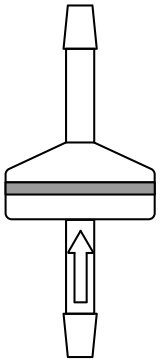
Did you know that these little parts can add life to your air compressor? Just put them inline with your Ingram Products HR10WB3 and HR15WB air compressors and see the results years down the road.



AP19FV0012P1L

Discharge Air Filter

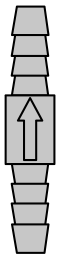
The Discharge Air Filter provides a final stage of filtering before it goes out to your equipment. It will filter particulates that can clog small orifices and impede air flow. Keep your compressor clean and running smoothly with the AP19FV0012P1L.



AP19CV0012NL

Back Check Valve

The Back Check Valve has a very low crack pressure and will prevent fluids from getting back to your pump during shutdowns or power failure. Avoid drowning your valuable compressor with the AP19CV0012NL.



IM - .016

Fixed Orifice

The Fixed Orifice is designed to steady air flow and reduce pulsing. Insure accurate pressure readings and install the IM-.016 diameter fixed orifice into your compressor system.

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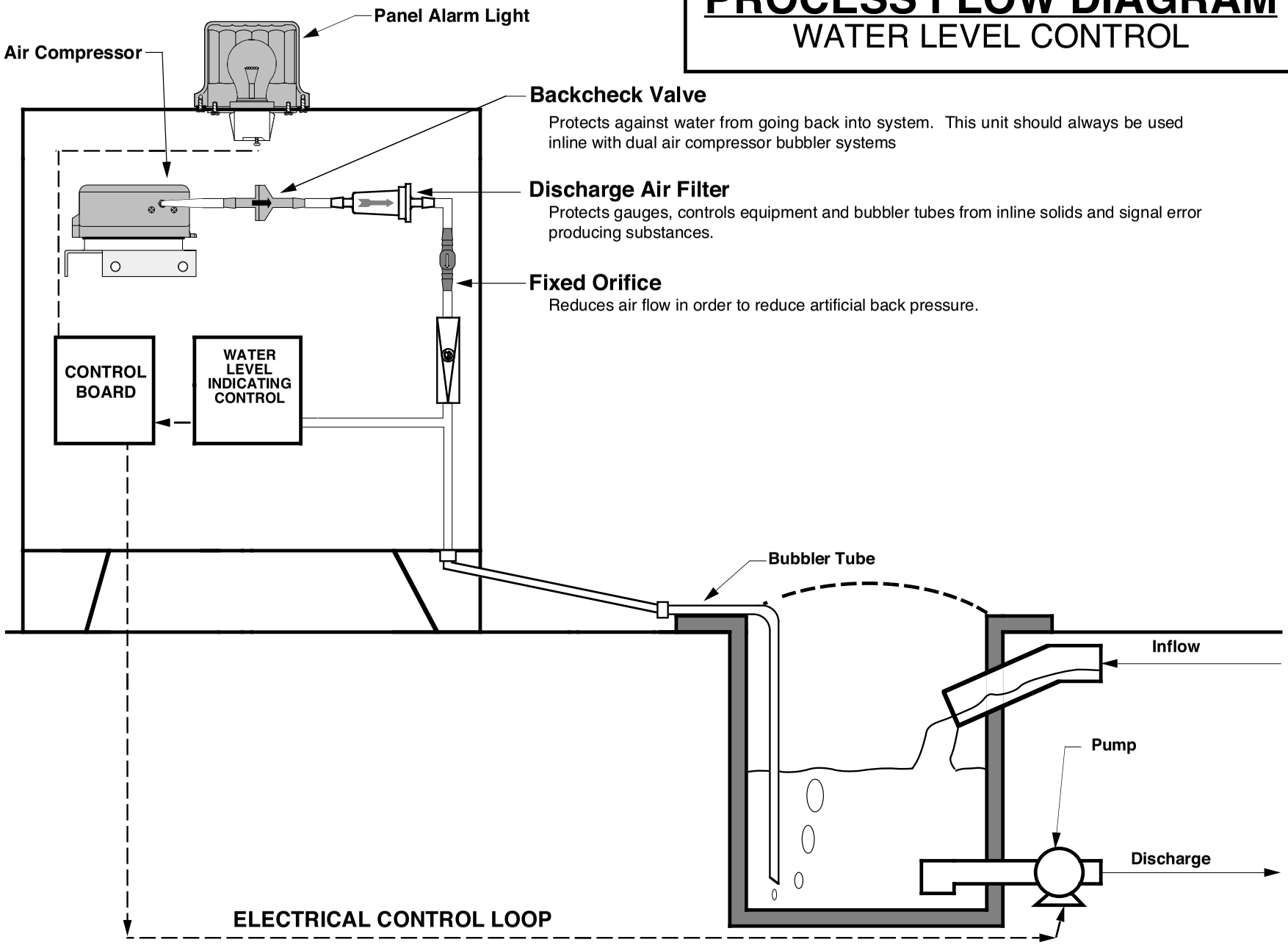
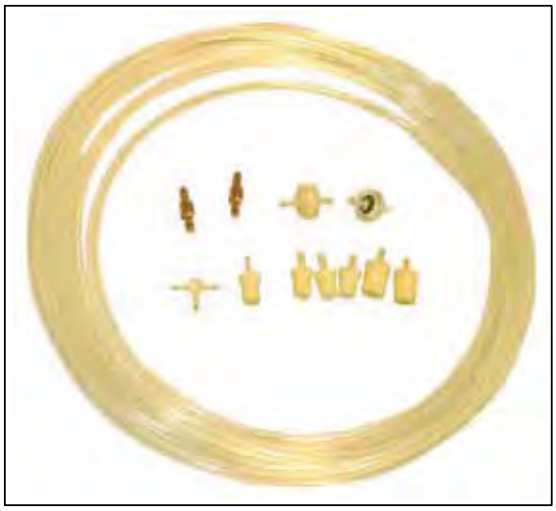
PROCESS FLOW DIAGRAM
WATER LEVEL CONTROL



Bubbler Kits for TUF Pump

Part Nos. BK-10, BK-20, BK-30

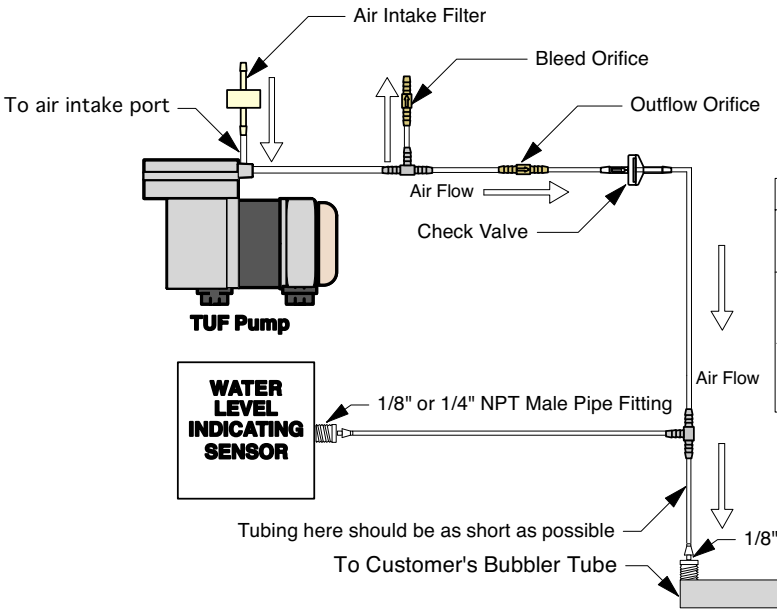


The Ingram bubbler kits are designed for Ingram TUF pumps to be used in bubbler type liquid level control applications. **They must always be used in conjunction with the pump to prevent excessive back pressure and heat from developing that can shorten pump life.** The BK-10 kit will maintain approximately 5 to 6 psi pressure for 0-10ft deep liquid reservoirs. The BK-20 will maintain 10 to11 psi for 0-20ft systems and the BK-30 will provide 14 to15 psi for 0-30ft systems.

Features / Technical Specifications

- Outflow orifice maintains correct flow for application, minimizing back pressure
- Bleed orifice relieves excess pump head pressure. It increases airflow through the pump to assist cooling
- 1/8" x 1/8" barbed check valve prevents liquid from backing up tubing during power outages
- Filter keeps contaminants from entering air supply
- 1/8" x 1/8" barbed air intake filter
- Two 1/8" x 1/8" x 1/8 " barbed tees
- Four 1/8" barb to 1/8" NPT connectors and two 1/8" barb to 1/4"NPT connectors
- 15ft of 1/8"ID x 1/4"OD polyurethane tubing

TUF Pump - Bubbler Liquid Level Control Application



Range	Ingram P/N	Bleed Orifice	Outflow Orifice
0 to 10 Ft.	BK-10	.020"	.010"
0 to 20 Ft.	BK-20	.016"	.012"
0 to 30 Ft.	BK-30	.010"	.010"

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TUF Pump Standard Rebuild Kit

Part No. PV20PKSTD

The Ingram Standard Rebuild Kit for the TUF Pump is required annually for applications where the pump will be operating 24 hour a day, 365 days a year. It allows you to quickly overhaul one unit with only a Phillips head screwdriver.

Features

- Diaphragm
- Cover gasket
- Two check valve gaskets
- Two check valve cover plates
- Fasteners

TUF Pump Deluxe Rebuild Kit

Part No. PV20PKDLX

The Ingram Deluxe Rebuild Kit for the TUF Pump contains all the hardware included in the Standard Rebuild Kit, plus the start/run capacitor for the pump.

Features

- Diaphragm
- Cover gasket
- Two check valve gaskets
- Two check valve cover plates
- Fasteners
- 4mfd, 250V Capacitor, UL recognized

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Capacitor for TUF Pump

Part No. C4MFD250V

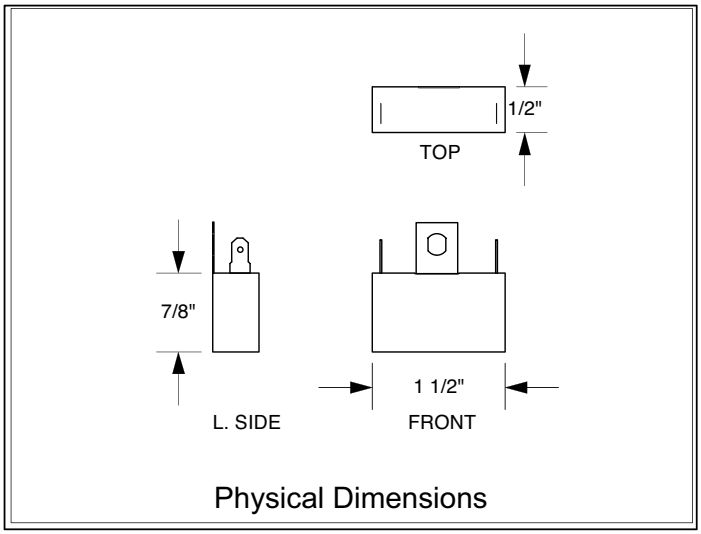
The Ingram TUF Pump requires a start/run capacitor for proper motor operation. This sturdy component is the direct replacement for the capacitor that comes with the TUF Pump.

Features

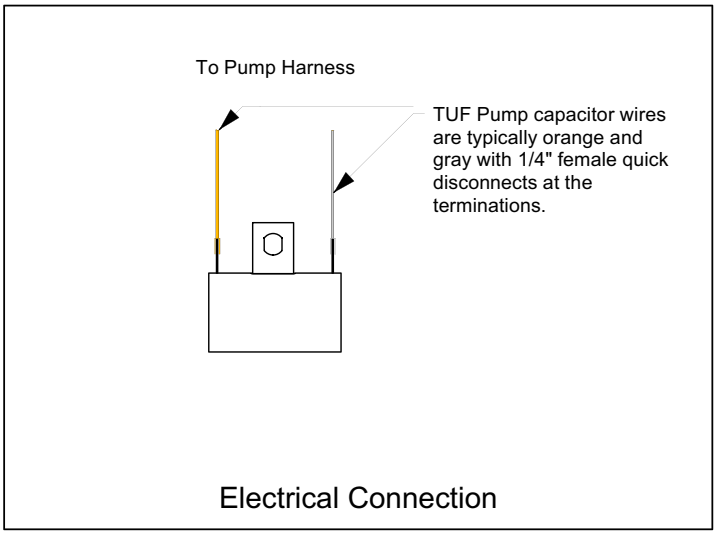
- Mounting tab
- Quick disconnect terminals

Technical Specifications

- 4 microfarad capacitance
- non-polarized



Physical Dimensions



Electrical Connection

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Multi-Function Moisture Sensing Liquid Level Control

INGRAM PRODUCTS, INC.

Part No. : MSR1P24A, MSR1P120A, MSR1P230A

The Ingram **Multi-function Moisture Sensing Relay (MSR)** saves you time and money. No more time spent trying to figure out the part number and features of the model that you need. All you have to select is the operating voltage when ordering an Ingram MSR. Drain or fill, sensitivity and time delay are all user selectable on the unit. It takes only one Ingram MSR to do the job of several of the competitor's MSRs.

The MSR was designed for use in two different applications:
(1) Seal monitor relay for use with submersible pumps.
(2) Single probe, single point liquid level indication and control.

Features

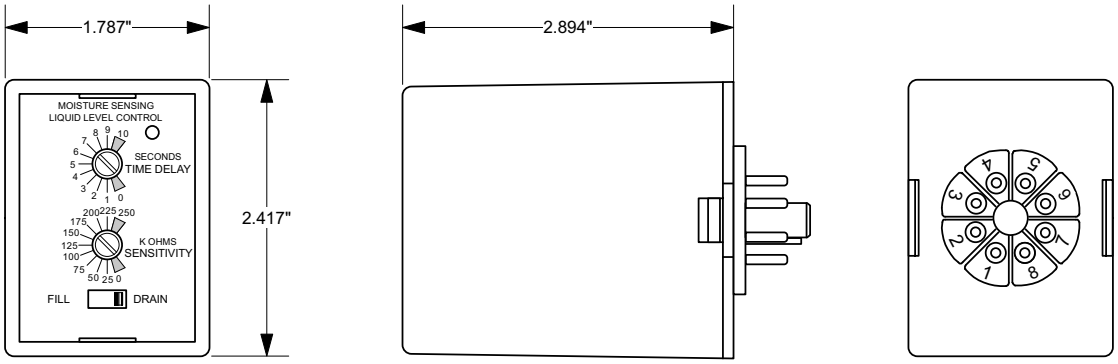
- Drain/Fill selector switch
- Adjustable time delay
- Adjustable sensitivity up to 250KΩ
- Stock item - same day shipping available
- LED Indicator reduces adjustment time
- SPDT isolated contacts
- Isolated AC voltage on the probe
- 5 year warranty
- UL Recognized: File E308954

Technical Specifications

MSR1P24A MSR1P120A MSR1P230A	62mA @ 24 VAC 23mA @ 120 VAC 15mA @ 230 VAC
Power Consumption	0.55 Watts
Probe Voltage	12VAC
Max Current at Probe	0.5mA
Probe Isolation	>1500 VAC
Adjustable Sensitivity	500Ω - 250KΩ
Adjustable Response Time	0.5 - 10 seconds
Reset Time	10 msec
Reset Type	Automatic
Output	SPDT Isolated Relay Contacts
Relay Contact Ratings	Load: 5A Resistive @ 240VAC 1/10 HP @ 240VAC
Operating Temperatures	-20˚C to +40˚C
Life Expectancy	Mechanical 100,000 Electrical 50,000
Humidity Tolerance	0 to 99% no condensing
Enclosure	ABS Plastic
Mounting	Octal Base Plug In
Weight	8.46oz

Applications

- Moisture Sensing Relay
- Single-point Liquid Level Controls
- High or low level alarm (field selectable)
- Seal monitor
- Solenoid control
- Detect the absence or presence of conductive liquid or moisture
- Boiler low water cut-off protection
- Boiler feed water level control
- HVAC
- Pump control
- Sump pump
- Hydropneumatic tank liquid level control
- Food and cooking equipment
- Dairy equipment
- Steam cookers
- Drink dispensers
- Tap water
- Sea water



APPLICATION NOTES

Seal Monitor Relay

Most submersible pumps have seal chambers filled with oil that has a high electrical resistance. When the seal for the shaft of the submersible begins to fail, water enters the seal chamber and mixes with the oil causing the resistance to drop. The MSR senses this drop in resistance and energizes the electromechanical relay. The relay is normally used to turn on a red warning indicator light that indicates a seal leak in the pump it is monitoring.

This early warning indicates that the pump seal needs to be repaired before the pump motor becomes damaged by liquid intrusion.

Failure probes are installed in the seal chamber using two different methods. The most common method is to install one probe in the chamber. The resistance between the probe and ground or pump housing is monitored by the seal monitor relay (see diagram 1). The other method uses two probes installed in the seal chamber. The resistance between the two probes in the seal chamber is monitored by the seal monitor relay (see diagram 2).

DIAGRAM 1

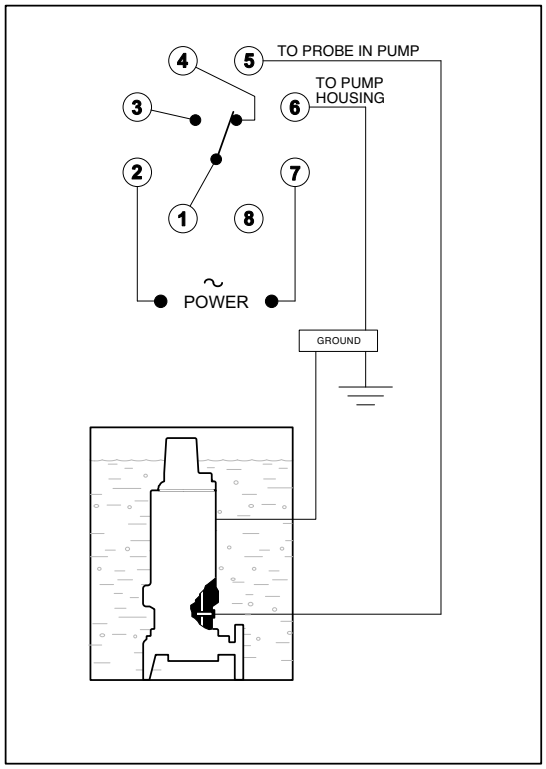
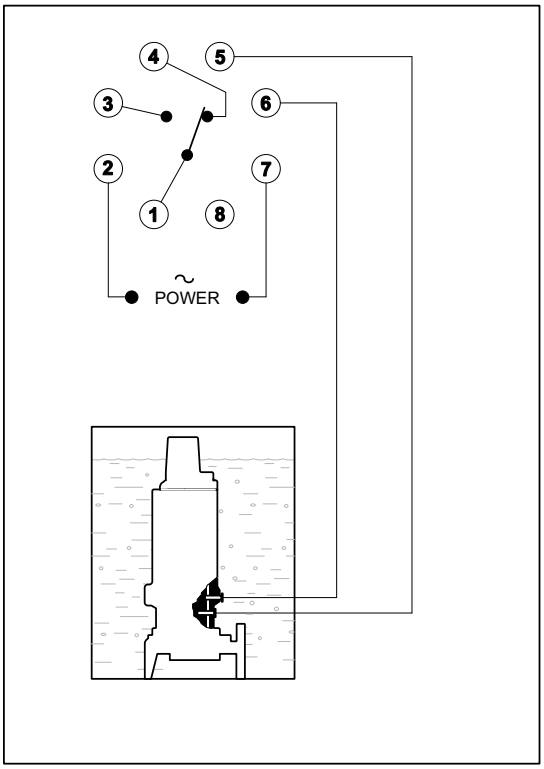


DIAGRAM 2



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APPLICATION NOTES (continued)

Adjusting Seal Monitor Relay

Most manufacturers of submersible pumps requiring seal monitoring have a recommended sensitivity setting for their pumps. The moisture sensing relay should be set at the pump manufacturer's recommended sensitivity setting. Ingram's MSR sensitivity can be adjusted from 500Ω to 250K ohms. It also has an adjustable time delay from 0.5 to 10 seconds to prevent nuisance tripping.

If the pump manufacturer does not have a recommended sensitivity setting use one of the following methods:

Note: Drain-Fill selector switch must be in the Drain position for this application.

1. A sensitivity setting of 30K ohms with a two second delay is considered adequate for most submersible pumps in most applications.

2. To obtain the earliest possible warning of contaminates entering the seal chamber, set the sensitivity as follows:

   A. Set the sensitivity potentiometer to the maximum 250K ohms. If the LED comes on and the MSR relay energizes, slowly turn the sensitivity potentiometer down until the MSR LED goes out.

   B. Note the sensitivity value indicated by the pot when the LED turns off. Set the sensitivity for approximately 20% less than this value. For example, if the LED goes out at the 100KΩ position while you are turning the pot down, set the sensitivity to 80K ohms (20% less than 100K ohms).

If the LED does not come on when MSR is adjusted to maximum sensitivity of 250K ohms, leave the setting at the 250K ohm. Be aware that this high sensitivity setting may result in false seal failure alarms.

Single Point Liquid Level Indication and Control
The MSR relay can be used for single point liquid level indication and/or control of conductive liquids.

Adjusting MSR for liquid level indication and/or control.
There are three adjustments that need to be set for liquid level indication and control:

DRAIN-FILL selector switch located on the top of the MSR.

Drain Position: Timing starts when the liquid level touches the probe connected to pin 5 of the MSR. At the end of the set time delay the relay will energize and contacts will transfer.

Fill Position: If the liquid level falls below the bottom of the probe that is connected to pin 5 of the MSR, timing will start and the contacts will transfer after the time delay has elapsed.

Screwdriver adjustable time delay located on top of the MSR.

The purpose of this time delay is to prevent false or momentary activation of the MSR due to wave action or agitation. It can be adjusted from 0.5 to 10 seconds.

Screw Sensitivity adjustment located on top of the MSR.

The sensitivity should be set as low as practical so long as the MSR responds reliably when the liquid touches or stops touching the probe. Our table of liquid sensitivity will give you a good idea of the maximum sensitivity required for various liquids.

Continued on Next Page

Application Examples

High level alarm. (Diagram 3.) In this application the MSR responds to a liquid level that needs to be kept below the bottom of “HIGH PROBE”. The DRAIN-FILL switch needs to be put in the DRAIN position for proper operation. When liquid rises and touches the bottom of the “HIGH PROBE”, the MSR begins timing. When the delay time has elapsed, and the liquid is still in contact with the probe, the MSR will energize and the relay contacts will transfer. The relay contacts can be used to activate an alarm or solenoid valve or to start a pump.

Low level alarm. (Diagram 4.) In this application the MSR responds to a liquid level that needs to be kept above the bottom of “LOW PROBE”. The DRAIN-FILL switch needs to be put in the FILL position for proper operation. When liquid falls below the bottom of the “LOW PROBE” the MSR begins timing. When the delay time has elapsed, and the liquid is still not in contact with the probe, the MSR will energize and the relay contacts will transfer. Again, the relay contacts can be used to activate an alarm or solenoid valve, or to start a pump.

DIAGRAM 3

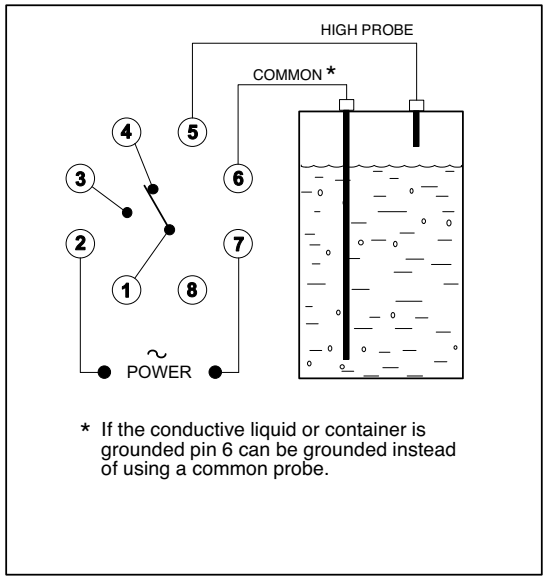
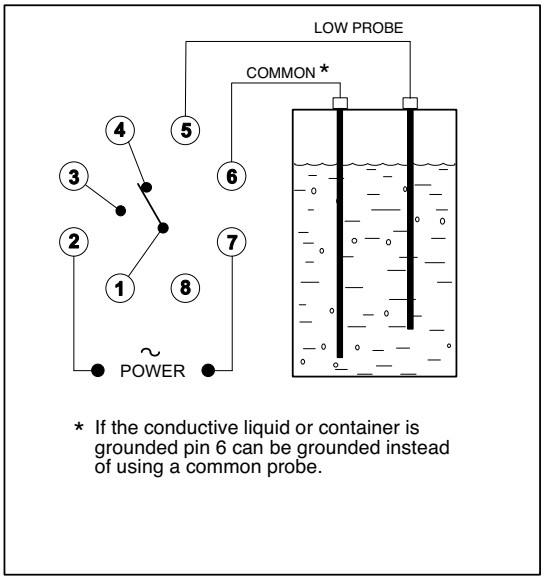


DIAGRAM 4



Multi-function Liquid Level Control

Part No. :LLC2P24A, LLC2P120A, LLC2P230A

The Ingram **Multi-function Liquid Level Control Relay (LLC)** saves you time and money. No more time spent trying to figure out the part number and features of the model that you need. All you have to select is the voltage when ordering an Ingram LLC. Drain or fill, sensitivity and time delay are all user selectable on the unit. It only takes one Ingram LLC to do the job of several of the competitor's LLCs.

The LLC was designed for use in two different applications:
(1) Two probe (on-off), liquid level controller.
(2) Seal monitor relay for use with submersible pumps.

Features

- Drain/Fill selector switch
- Adjustable time delay
- Adjustable sensitivity up to 100KΩ
- Stock item - same day shipping available
- LED Indicator reduces adjustment time
- SPDT isolated contacts
- Isolated AC voltage on the probe
- 5 year warranty
- UL Recognized: File E308954

Technical Specifications

LLC2P24A LLC2P120A LLC2P230A	69mA @ 24 VAC 26mA @ 120 VAC 18mA @ 230 VAC
Probe Voltage	12VAC
Max Current at Probe	0.5mA
Probe Isolation	>1500 VAC
Adjustable Sensitivity	500Ω - 100KΩ
Adjustable Response Time	0.5 - 10 seconds
Reset Time	10 msec
Reset Type	Automatic
Output	SPDT Isolated Relay Contacts
Relay Contact Ratings	4A resistive @ 240VAC 1/10hp @ 240VAC
Operating Temperatures	-20˚C to +40˚C
Life Expectancy	Mechanical 100,000 Electrical 50,000
Humidity Tolerance	0 to 99% no condensing
Enclosure	ABS Plastic
Mounting	Octal Base Plug In
Weight	8.46oz

Applications

- High or low level alarm (field selectable)
- 2 point level control (on-off)
- Single point liquid level controls
- Moisture sensing relay
- Seal monitor
- Solenoid control
- Boiler low water cutoff protection
- Boiler feed water level control
- Tap water
- Sea water
- Pump control
- Sump pump
- Hydropneumatic tank liquid level control
- Food and cooking equipment
- Dairy equipment
- Steam cookers
- Drink dispensers

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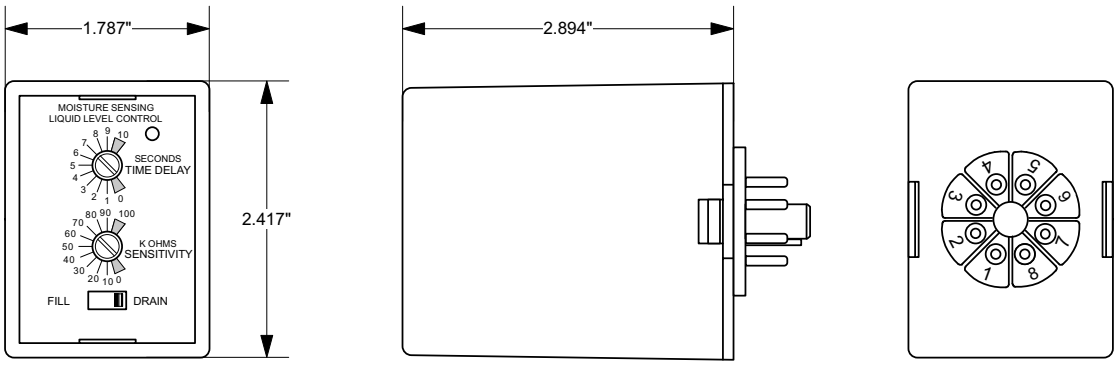


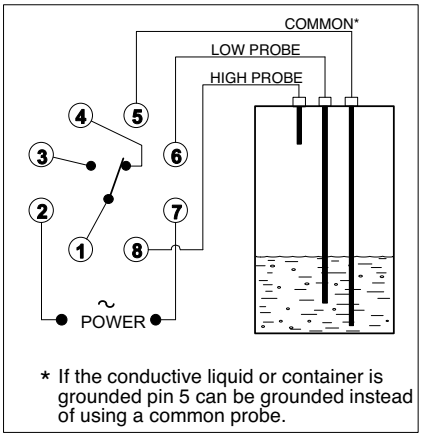
APPLICATION EXAMPLES

Liquid Level Control

Scenario A: To start and stop a pump that pumps liquid out of a tank to prevent overflow. (See diagram 1). The DRAIN-FILL switch needs to be in the DRAIN position for this application. As liquid rises in the tank it will touch the COMMON probe; no action will occur. As the liquid level continues to rise it will come into contact with the LOW probe and no action will occur. The liquid will continue to rise until it comes into contact with the HIGH probe. When the liquid touches the HIGH probe the LED will come on, the timer will start and the relay contacts will transfer after the time delay elapses. The relay contacts can be used to start a pump to expel liquid from the tank. The pump will remain on until the liquid level falls below the LOW probe at which time the relay will de-energize and stop the pump.

Scenario B: To start and stop a pump that pumps liquid into a tank to keep the tank from becoming empty. (See diagram 1) The DRAIN-FILL switch needs to be in the FILL position for this application. If the tank is full of liquid touching all three probes, no action will occur. As the liquid level falls it will stop touching the HIGH probe first; no action will occur. As the liquid continues to fall it will stop touching the LOW probe. At this point, the LED will come on, the timer will start and the relay contacts will transfer after the time delay elapses. The relay contacts can be used to start a pump that will supply liquid to the tank. As the level rises and touches the LOW probe, no action will occur. When it reaches the HIGH probe, the relay will de-energize, stopping the pump.

DIAGRAM 1



Two probe liquid level controller.
The LLC relay can be used as a two point (on off) liquid level controller of conductive liquids.

Adjusting LLC for liquid level control.
There are three adjustments that need to be set for liquid level indication and control:
DRAIN-FILL selector switch located on the top of the LLC.
DRAIN position: The probe connected to pin #8 will activate and start timing when the liquid level reaches the probe. At the end of the time delay, the relay will energize and the contacts will transfer.
FILL position: If the liquid level falls below the bottom of the probe connected to pin 6 of the LLC, it will initiate timing and the contacts will transfer after the time delay elapses.

Screwdriver adjustable time delay located on top of the LLC.
The purpose of the time delay is to prevent false or momentary activation of the LLC due to wave action or agitation. It can be adjusted from 0.5 to 10 seconds.

Sensitivity adjustment located on top of the LLC.
The sensitivity should be set as low as practical so long as the LLC responds reliably when the liquid touches or stops touching the probe. Our table of liquid sensitivity will give you a good idea of the maximum sensitivity required for various liquids.

Seal Monitor Relay

Most submersible pumps have seal chambers filled with oil that has a high electrical resistance. When the seal for the shaft of the submersible begins to fail, water enters the seal chamber and mixes with the oil causing the resistance to drop. The MSR senses this drop in resistance and energizes the electromechanical relay. The relay is normally used to turn on a red warning indicator light that indicates a seal leak in the pump it is monitoring.

This early warning indicates that the pump seal needs to be repaired before the pump motor becomes damaged by liquid intrusion.

Failure probes are installed in the seal chamber using two different methods. The most common method is to install one probe in the chamber. The resistance between the probe and ground or pump housing is monitored by the seal monitor relay (see diagram 2). The other method uses two probes installed in the seal chamber. The resistance between the two probes in the seal chamber is monitored by the seal monitor relay (see diagram 3).

DIAGRAM 2

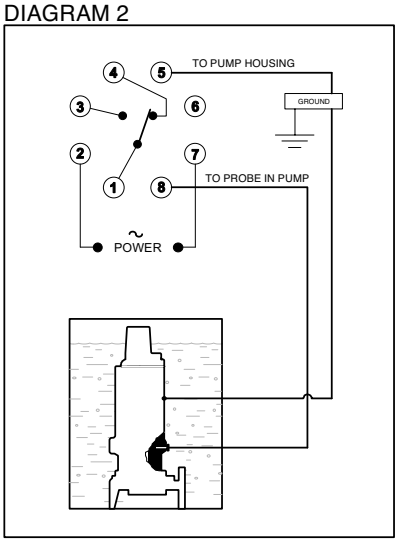
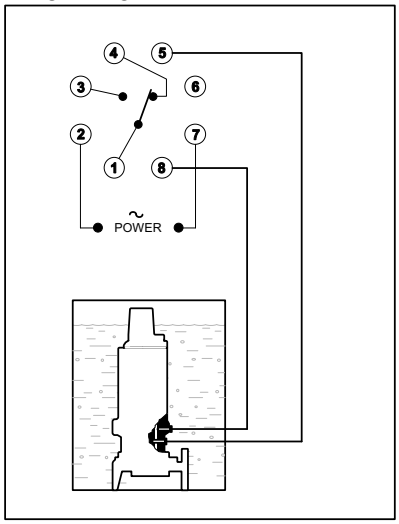


DIAGRAM 3



Adjusting Seal Monitor Relay

Most manufacturers of submersible pumps requiring seal monitoring have a recommended sensitivity setting for their pumps. The moisture sensing relay should be set at the pump manufacturer's recommended sensitivity setting. Ingram's LLC sensitivity can be adjusted from 500Ω to 100K ohms. It also has an adjustable time delay from 0.5 to 10 seconds to prevent nuisance tripping.

If the pump manufacturer does not have a recommended sensitivity setting, use one of the following methods:
Note: Drain-Fill selector switch must be in the Drain position for this application.

1. A sensitivity setting of 30K ohms with a two second delay is considered adequate for most submersible pumps in most applications.

2. To obtain the earliest possible warning of contaminates entering the seal chamber, set the sensitivity as follows:

   A. Set the sensitivity potentiometer to the maximum 100K ohms. If the LED comes on and the LLC relay energizes, slowly turn the sensitivity potentiometer down until the LLC LED goes out.

   B. Note the sensitivity value indicated by the pot when the LED turns off. Set the sensitivity for approximately 20% less than this value. For example, if the LED goes out at the 50KΩ position while you are turning the pot down, set the sensitivity to 40K ohms (20% less than 50K ohms).

If the LED does not come on when LLC is adjusted to maximum sensitivity of 100K ohms, leave the setting at the 100K ohm. Be aware that this high sensitivity setting may result in false seal failure alarms.

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INGRAM PRODUCTS, INC.

ISR2

Specifications

Electrical
Supply Voltage: 12 or 24 AC/DC ±10%
Power: 1.5 watts
Inputs: Switch Closure or Probe
Input Sensitivity: 10k - 100k Ω
Pick-up & Drop-out Delays: 0.5 second
Max. Open Circuit Voltage: 7 volts
Max. Source Current: 0.1 milliamps
Output Rating @ 25°C:
5 Amps @ 125VAC
5 Amps @ 30VDC or 250VAC
20,000,000 Mechanical Cycles

Physical
Mounting: Din Rail mount
Termination: Touch safe screw terminals with lift mechanism, #12 AWG max.
Weight: 10 Oz.

Ambient Temperatures
Operating: 0°C to 55°C
Storage: -40°C to 85°C

UL-913
Class 1, Division 1
Groups A, B, C, and D
Hazardous Locations

- 2 Independent Relays
- Compact Design
- Contact or Probe Input
- Built-in De-bounce Delays
- Power and Output status LEDs
- Low Voltage Design for 12 or 24VAC/DC
- Din Mounting
- 12 or 24VDC Battery Back-Up

E190864
Standard UL 913

Ordering Information

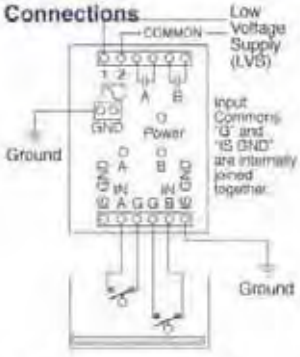
ISR2 - 24V - 10K

Ingram Model

Sensitivity
10K - 100k Ω
(Consult factory for other sensitivity options.)

Operating Voltage
12V - 12VAC/DC
24V - 24VAC/DC

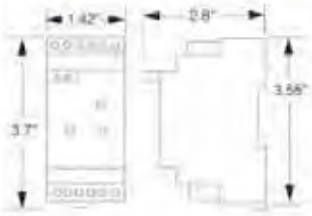
Connections

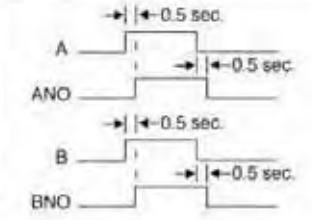


See control drawing A6757-4 for other input examples.

If Low Voltage Supply is grounded, the ground must be connected to terminal 2.

Dimensions





Operation

Two Channel Relay
The ISR2 has two independent inputs to the hazardous area and two independent (dry contact) relay outputs. The inputs to the hazardous area can be switches or, when used with a conductive liquid, electrodes. When input "A" is completed (contact closed or low resistance), 0.5 seconds later the dry output contact "A" is closed and the "A" LED turns on. When input "A" is opened (contact opened or high resistance), 0.5 seconds later the dry output contact "A" opens and "A" LED turns off. "B" operates the same way, but is independent of "A". There is also a supply power LED indicator. The ISR2 must be located and grounded in a non-hazardous location.

INGRAM PRODUCTS, INC.

Installation of Relays with Intrinsically Safe Outputs

Installation of these relays should only be performed by personnel experienced with intrinsically safe devices. Proper wiring practices must be strictly adhered to in order to prevent injury to personnel and property damage due to explosion or fire.

IMPORTANT: BEFORE PROCEEDING TO INSTALL AND WIRE THE RELAY, READ AND THOROUGHLY UNDERSTAND THESE INSTRUCTIONS.

When installed according to the following instructions and Control Drawing A-6757-4 these Relays are for use in Class I, Division 1, Groups A, B, C, and D. The relay must be mounted in a suitable enclosure which is tool accessible and is situated in a non hazardous area where an explosive atmosphere will not exist at any time.

WIRING:

1. All intrinsically safe wiring should be installed in accordance with NEC NFPA 70 Article 504 and ISA RP 12.6

2. Electrical equipment connected to the non intrinsically safe side should not use or be capable of generating more than 250 volts with respect to earth.

3. Intrinsically safe wiring connecting to the relay must be kept separate from non-intrinsically safe wiring by means of physical barriers and wiring tie down devices to insure no contact.

4. The cabinet must have a proper earth ground and the relay must be grounded. At least one ground from the intrinsically safe side and the non intrinsically safe side of relay must be made using #12 AWG insulated conductors. The units redundant earth ground wires must be individually connected with metal screws and lockwashers to the cabinets earth ground. Resistance between the relay ground to the grounding electrode shall be less than one ohm.

5. Intrinsically safe connections must not be made to any energy generating device or device mounted inside a tank subjected to pressures greater than 15 psi without specific approval.

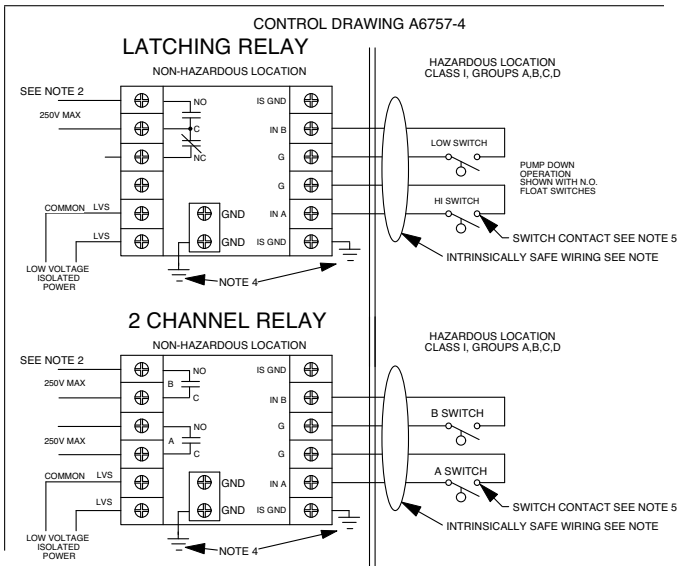
6. Maximum distance between the input of the relay and the switch is 1000 feet. Cable capacitance plus intrinsically safe equipment capacitance must be less than the marked capacitance (Ca) shown on any barrier used. The same applies for inductance. We recommend the use of 14 AWG type THHN wire without splices. In no case should the capacitance or inductance exceed the specified limits. If the characteristics of your wire are unknown the following values may be used.

   CAPACITANCE: 60 pf / ft
   INDUCTANCE: 0.20 μh / ft

7. This device may be used in a Division 2 Location if so approved.

8. Selected barriers must have Voc not exceeding Vmax and Isc not exceeding Imax as shown below. All barriers bust be of the same polarity.

   Entity parameters:
   Voc = 5.89 Volts
   Isc = 0.132 mA
   Ca = 0.45 μf
   La=500mH
   Voc ≤ Vmax
   Isc ≤ Imax
   Ca ≥ CI + Ccable
   La ≥ Li + Lcable



INGRAM PRODUCTS, INC.

ISRL

Specifications

Electrical
Supply Voltage: 12 or 24 AC/DC ±10%
Power: 0.8 watts
Inputs: Switch Closure or Probe
Input Sensitivity: 10k - 100k Ω
Pick-up & Drop-out Delays: 1 second
Max. Open Circuit Voltage: 7 volts
Max. Source Current: 0.1 milliamps
Output Rating @ 25°C:
5 Amps @ 125VAC
5 Amps @ 30VDC or 250VAC
20,000,000 Mechanical Cycles

Physical
Mounting: Din Rail mount
Termination: Touch safe screw terminals, with lift mechanism, #12 AWG max.
Weight: 10 Oz.

Ambient Temperatures
Operating: 0°C to 55°C
Storage: -40°C to 85°C

UL-913
Class 1, Division 1
Groups A, B, C, and D
Hazardous Locations

- Two Inputs - Latching Function
- Compact Design
- Contact or Probe Input
- Built-in De-bounce Delays
- Output and Input status LEDs
- Low Voltage Design for 12 or 24VAC/DC
- Din Mounting
- 12 or 24VDC Battery Back-Up

E190864
Standard UL 913

Ordering Information

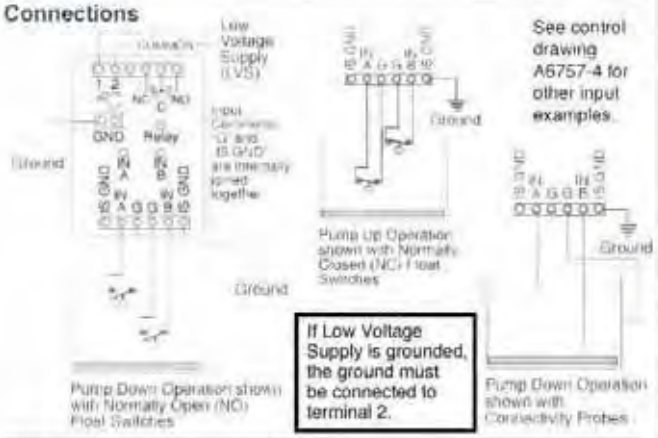
ISRL - 24V - 10K

Ingram Model

Operating Voltage
12V - 12VAC/DC
24V - 24VAC/DC

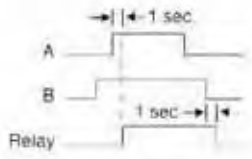
Sensitivity (Max. contact resistance)
10K - 100K Ω
(Consult factory for other sensitivity options.)

Connections



If Low Voltage Supply is grounded, the ground must be connected to terminal 2.

Dimensions



Operation

Latching Relay
The ISRL has two independent inputs to the hazardous area and one (dry contact) relay output with a latching function. The inputs can be switches or, when used with a conductive liquid, electrodes. For pump down when input "B" is completed (contact closed or low resistance), 1 second later LED "B" turns on.
When input "A" is completed (contact closed or low resistance) 1 second later LED "A" turns on, the "Relay" LED turns on, and the dry output contact is energized and latched. When "A" input opens or high resistance, output remains latched. When "B" input opens or high resistance, output contact is de-energized and unlatches.
For pump up applications, use normally closed inputs and switch the position of A and B.
This device must be located and grounded in a non-hazardous location.

INGRAM PRODUCTS, INC.

Installation of Relays with Intrinsically Safe Outputs

Installation of these relays should only be performed by personnel experienced with intrinsically safe devices. Proper wiring practices must be strictly adhered to in order to prevent injury to personnel and property damage due to explosion or fire.

IMPORTANT: BEFORE PROCEEDING TO INSTALL AND WIRE THE RELAY, READ AND THOROUGHLY UNDERSTAND THESE INSTRUCTIONS.

When installed according to the following instructions and Control Drawing A-6757-4 these Relays are for use in Class I, Division 1, Groups A, B, C, and D. The relay must be mounted in a suitable enclosure which is tool accessible and is situated in a non hazardous area where an explosive atmosphere will not exist at any time.

WIRING:

1. All intrinsically safe wiring should be installed in accordance with NEC NFPA 70 Article 504 and ISA RP 12.6

2. Electrical equipment connected to the non intrinsically safe side should not use or be capable of generating more than 250 volts with respect to earth.

3. Intrinsically safe wiring connecting to the relay must be kept separate from non-intrinsically safe wiring by means of physical barriers and wiring tie down devices to insure no contact.

4. The cabinet must have a proper earth ground and the relay must be grounded. At least one ground from the intrinsically safe side and the non intrinsically safe side of relay must be made using #12 AWG insulated conductors. The units redundant earth ground wires must be individually connected with metal screws and lockwashers to the cabinets earth ground. Resistance between the relay ground to the grounding electrode shall be less than one ohm.

5. Intrinsically safe connections must not be made to any energy generating device or device mounted inside a tank subjected to pressures greater than 15 psi without specific approval.

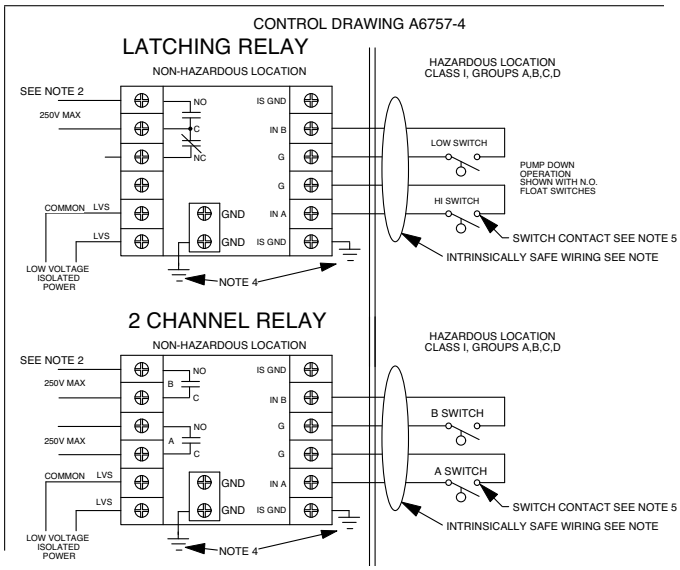
6. Maximum distance between the input of the relay and the switch is 1000 feet. Cable capacitance plus intrinsically safe equipment capacitance must be less than the marked capacitance (Ca) shown on any barrier used. The same applies for inductance. We recommend the use of 14 AWG type THHN wire without splices. In no case should the capacitance or inductance exceed the specified limits. If the characteristics of your wire are unknown the following values may be used.

   CAPACITANCE: 60 pf / ft
   INDUCTANCE: 0.20 μh / ft

7. This device may be used in a Division 2 Location if so approved.

8. Selected barriers must have Voc not exceeding Vmax and Isc not exceeding Imax as shown below. All barriers bust be of the same polarity.

   Entity parameters:
   Voc = 5.89 Volts
   Isc = 0.132 mA
   Ca = 0.45 μf
   La=500mH
   Voc ≤ Vmax
   Isc ≤ Imax
   Ca ≥ CI + Ccable
   La ≥ Li + Lcable



INGRAM PRODUCTS, INC.

Relay with Intrinsically Safe Inputs

ISR_-R
4 Channel

Specifications

Electrical

Supply Voltage: 24, 120 & 240VAC ±10%
Power: 2VA
Inputs: Switch Closure
or Probe (Conductivity)
Input Sensitivity: 3K - 1.5MΩ
Pick-up & Drop-out Delays: 1 second
Max. Open Circuit Voltage: 5 volts AC
Max. Source Current: 0.1 milliamp AC
Output Rating @ 25°C:
5 Amps or 100VA per contact
10 Amps total
250VAC maximum contact rating
10,000,000 Mechanical Cycles

Physical

Mounting: Din Rail mount
Termination: Touch safe screw terminals, with lift mechanism, #12 AWG max. for supply and relay contacts, #16 AWG max. for intrinsically safe inputs.
Weight: 10 Oz.

Ambient Temperatures

Operating: 0°C to 50°C
Storage: -40°C to 85°C

- 1, 2, 3, or 4 Channels
- Shorted Input Sensing
- Open Input Sensing
- Outputs Isolated from Supply
- Contact or Probe Inputs
- Conductivity or Resistance Inputs
- Output and Input LED Indication
- Independent Operation
- Pluggable Terminal Blocks
- Din or Surface Mount
- 24 to 240VAC Supply

Ordering Information

ISR 4 R - 120A - R

Ingram Model

Number of Channels
1 - 1 I/O
2 - 2 I/O
3 - 3 I/O
4 - 4 I/O

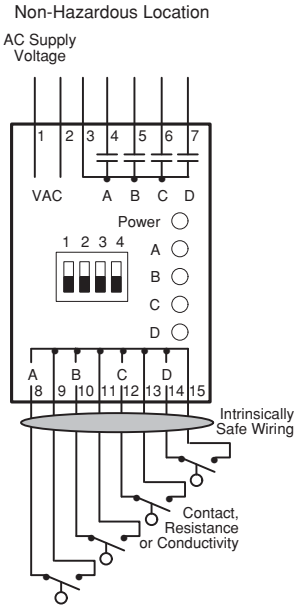
Mounting Options
R - DIN Rail
S - Surface

Operating Voltage
24A -24VAC
120A -120VAC
240A -240VAC

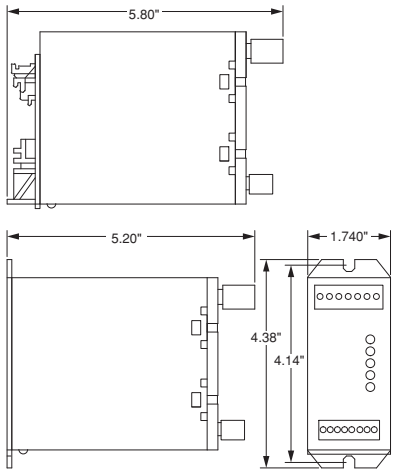
Sensitivity
10K - 10,000 Ohms
50K - 50,000 Ohms
100K - 100,000 Ohms
___ - Other Options

Relay Operation
R - Relay

Connections



Dimensions



UL913
Class I, Division 1
Groups A, B, C & D

Operation

Independent Channel Relay
Supply voltage must be applied to the ISR_-R relay during operation. The ISR_-R can have 1, 2, 3 or 4 channels. When IS input #1 closes its LED changes and #1 output contact closes. When IS input #1 opens#1 output contact opens. Each channel operates independent of the other channels. LED indicators are:
Red - When the IS input is open or high
Green - When both the IS input & output contact are closed
Flashes - During transition delay
A green LED indicates when supply voltage has been applied to the ISR_-R.

Installation of Relays with Intrinsically Safe Inputs

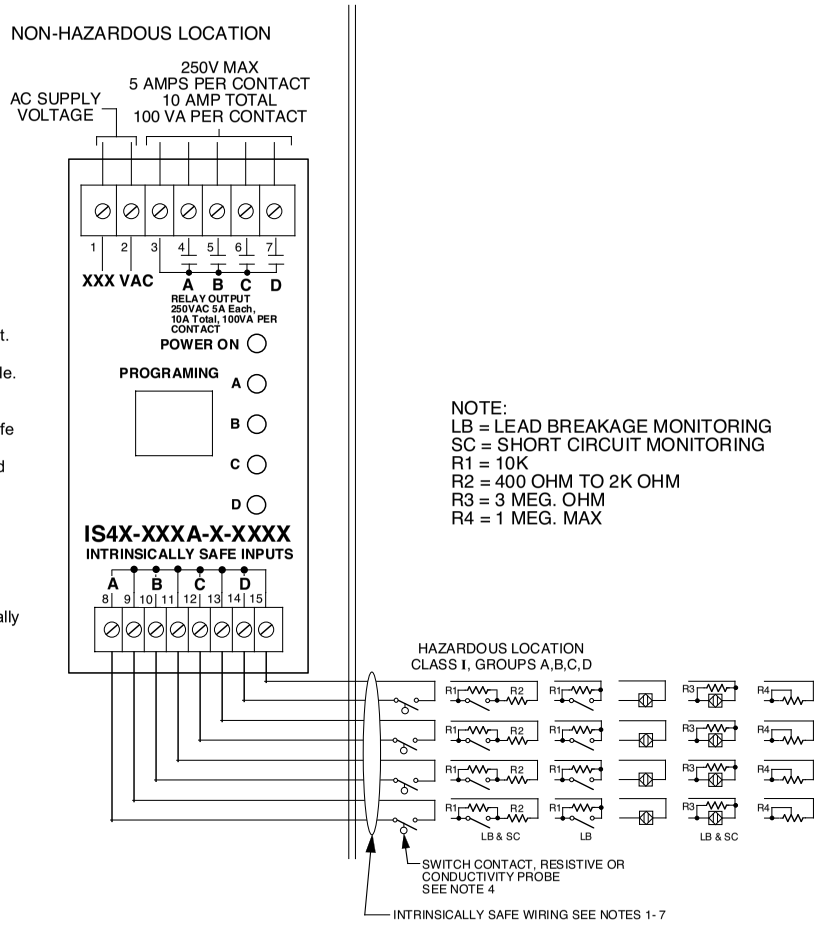
Installation of Relay Module with Intrinsically Safe Inputs
Installation of these relays should only be performed by personnel experienced with intrinsically safe devices. Proper wiring practices must be strictly adhered to in order to prevent injury to personnel and property damage due to explosion or fire.
IMPORTANT: BEFORE PROCEEDING TO INSTALL THE DEVICE, READ AND THOROUGHLY UNDERSTAND THESE INSTRUCTIONS.
When installed according to the following instructions the Relay Module provide circuits for use in Class I, Division 1, Groups A, B, C, and D. The device must be mounted in a suitable enclosure which is tool accessible and is situated in a non hazardous area where an explosive atmosphere will not exist at any time.

WIRING:
1. Associated apparatus must be installed in an enclosure suitable for the application in accordance with the National Electrical Code (ANSI/NFPA 70) for installation in the United States, the Canadian Electrical Code for installations in Canada, or other local codes, as applicable.
2. Where multiple circuits extend from the same piece of associated apparatus, they must be installed in separate cables or in one cable having suitable insulation. Refer to Article 504.30(B0 of the National Electrical Code (ANSI/NFPA 70) and Instrument Society of America Recommended Practice ISA RP12.6 for installing intrinsically safe equipment.
3. Intrinsically safe circuits must be wired and separated in accordance with Article 504.20 of the National Electrical Code (ANSI/NFPA 70) or other local codes, as applicable.
4. Electrical equipment connected to the non intrinsically safe side should not use or be capable of generating more than 250 volts with respect to earth.
5. Intrinsically safe wiring connecting to the relay must be kept separate from non-intrinsically safe wiring by means of physical barriers and wiring tie down devices to insure no contact.
6. Cable capacitance plus intrinsically safe equipment capacitance must be less than the marked capacitance (Ca) shown on any barrier used. The same applies for inductance.
We recommend the use of type THHN wire without splices. In no case should the capacitance or inductance exceed the specified limits. If the characteristics of your wire are unknown the following values may be used.
CAPACITANCE: 60 pf / ft INDUCTANCE: 0.20 µh / ft
7. Selected intrinsically safe equipment must be third party listed as intrinsically safe for the application, and have intrinsically safe entity parameters conforming with Table 1 below. The entity parameters have been assigned based on the worse case combination of all intrinsically safe circuits.

Table 1:

I.S. Equipment		Associated Apparatus
V max (or Ui)	≥	Voc or Vt (or Uo)
I max (or Ii)	≥	Isc or It (or Io)
P max, Pi	≥	Po
Ci + Ccable	≤	Ca (or Co)
Li + Lcable	≤	La (or Lo)

Entity parameters:
Voc = 16.8 Volts
Isc = 3.3 mA
Ca = 0.312 µf
La= 100 mH
Voc ≤ Vmax
Isc ≤ Imax
Ca ≥ Ci + Ccable
La ≥ Li + Lcable



NOTE:
LB = LEAD BREAKAGE MONITORING
SC = SHORT CIRCUIT MONITORING
R1 = 10K
R2 = 400 OHM TO 2K OHM
R3 = 3 MEG. OHM
R4 = 1 MEG. MAX

REF. DRAWING(S)	REV.	DATE	CAR/PROJECT #	DESCRIPTION

CONTROL DRAWING

SCALE: NONE	UPDATED BY	REDESIGNED BY	A-6888-4
SIMILAR TO:			
QUOTE #:	DRAWN BY	DESIGNED BY	
DRAWING DATE: 01/23/06	O.S.	D.P.	SHEET 1 OF 1

INGRAM PRODUCTS, INC.
904.778.1010 or 888.875.2221 • www.ingramproducts.com • sales@ingramproducts.com

3/13/06

Latching Relay with Intrinsically Safe Inputs

ISR_-L

Specifications

Electrical

Supply Voltage: 24, 120 & 240VAC ±10%
Power: 2VA
Inputs: Switch Closure
or Probe (Conductivity)
Input Sensitivity: 3K - 1.5MΩ
Pick-up & Drop-out Delays: 1 second
Max. Open Circuit Voltage: 5 volts AC
Max. Source Current: 0.1 milliamp AC
Output Rating @ 25°C:
5 Amps or 100VA per contact
10 Amps total
250VAC maximum contact rating
10,000,000 Mechanical Cycles

Physical

Mounting: Din Rail mount
Termination: Touch safe screw terminals, with lift mechanism, #12 AWG max. for supply and relay contacts, #16 AWG max. for intrinsically safe inputs.
Weight: 10 Oz.

Ambient Temperatures

Operating: 0°C to 50°C
Storage: -40°C to 85°C

- Latching Logic
- Pump Down or Pump Up
- 2, 3, or 4 Channels
- Shorted Input Sensing
- Open Input Sensing
- Contact or Probe Inputs
- Output and Input LED Indication

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UL913
Class I, Division 1
Groups A, B, C & D

Ordering Information

ISR 4 R - 120A - L

Ingram Model

Number of Channels
2 - 2 I/O
3 - 3 I/O
4 - 4 I/O

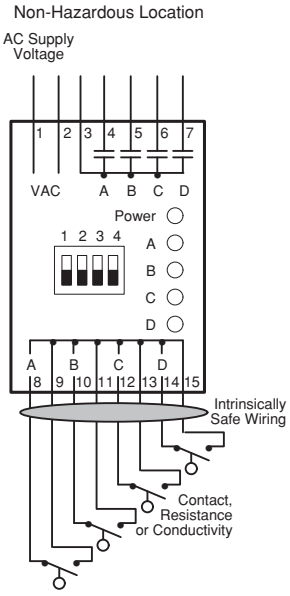
Mounting Options
R - DIN Rail
S - Surface

Operating Voltage
24A -24VAC
120A -120VAC
240A -240VAC

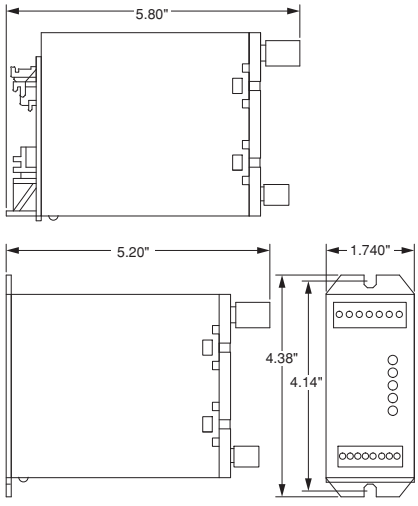
Relay Operation
L - Latch

Sensitivity
10K - 10,000 Ohms
50K - 50,000 Ohms
100K - 100,000 Ohms
___ - Other Options

Connections



Dimensions



Operation

Four Channel Latching Relay

Supply voltage must be applied to the ISR_-L relay during operation. The ISR_-L can have 2, 3 or 4 channels. The latching logic is set up for a pump down operation. (Pump up is available too.) When IS input #1 closes its LED changes and #1 output contact closes. When IS input #2 closes, output contact #2 closes, latches in and starts the first pump. When IS inputs #3 and #4 close, Output contacts #3 and #4 latch closed, respectively. All output contacts remain closed, even if their inputs open, until input #1 opens, and all output contacts open, indicating that the system has pumped down.

LED indicators will be:
Red - When the IS input is open or high
Green - When both the IS input & output contact are closed
Amber - Latch Logic - IS input open & Output closed
Flashes - During transition delay
A green LED indicates when supply voltage has been applied to the ISR_-L.

Installation of Relays with Intrinsically Safe Inputs

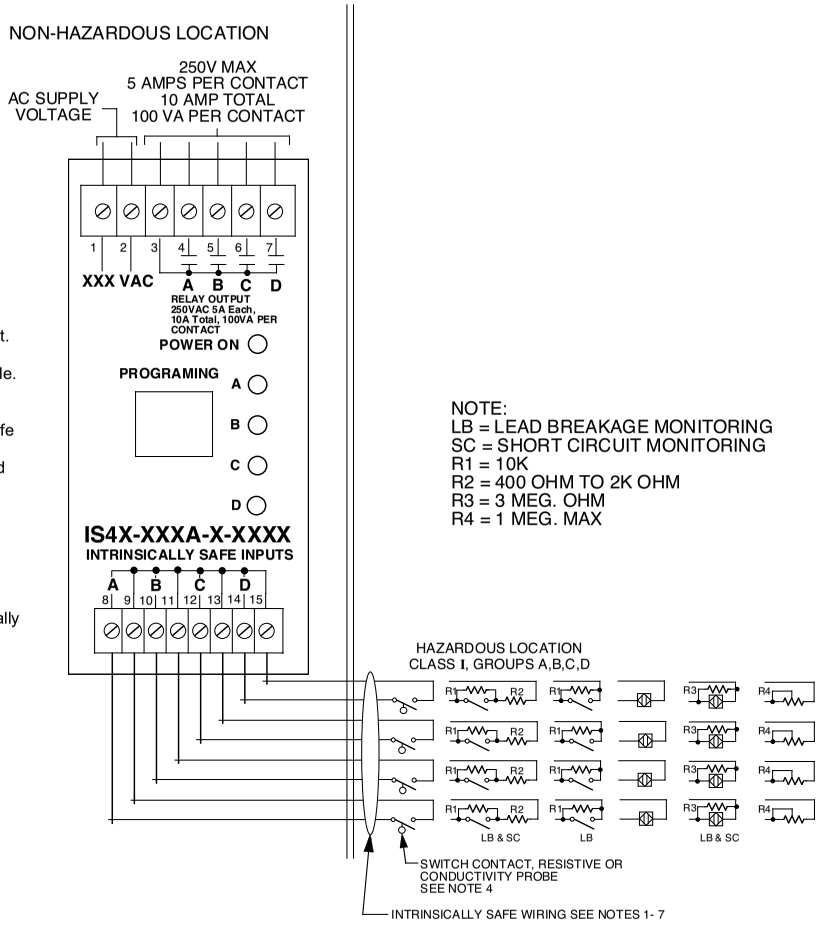
Installation of Relay Module with Intrinsically Safe Inputs
Installation of these relays should only be performed by personnel experienced with intrinsically safe devices. Proper wiring practices must be strictly adhered to in order to prevent injury to personnel and property damage due to explosion or fire.
IMPORTANT: BEFORE PROCEEDING TO INSTALL THE DEVICE, READ AND THOROUGHLY UNDERSTAND THESE INSTRUCTIONS.
When installed according to the following instructions the Relay Module provide circuits for use in Class I, Division 1, Groups A, B, C, and D. The device must be mounted in a suitable enclosure which is tool accessible and is situated in a non hazardous area where an explosive atmosphere will not exist at any time.

WIRING:
1. Associated apparatus must be installed in an enclosure suitable for the application in accordance with the National Electrical Code (ANSI/NFPA 70) for installation in the United States, the Canadian Electrical Code for installations in Canada, or other local codes, as applicable.
2. Where multiple circuits extend from the same piece of associated apparatus, they must be installed in separate cables or in one cable having suitable insulation. Refer to Article 504.30(B0 of the National Electrical Code (ANSI/NFPA 70) and Instrument Society of America Recommended Practice ISA RP12.6 for installing intrinsically safe equipment.
3. Intrinsically safe circuits must be wired and separated in accordance with Article 504.20 of the National Electrical Code (ANSI/NFPA 70) or other local codes, as applicable.
4. Electrical equipment connected to the non intrinsically safe side should not use or be capable of generating more than 250 volts with respect to earth.
5. Intrinsically safe wiring connecting to the relay must be kept separate from non-intrinsically safe wiring by means of physical barriers and wiring tie down devices to insure no contact.
6. Cable capacitance plus intrinsically safe equipment capacitance must be less than the marked capacitance (Ca) shown on any barrier used. The same applies for inductance. We recommend the use of type THHN wire without splices. In no case should the capacitance or inductance exceed the specified limits. If the characteristics of your wire are unknown the following values may be used.
CAPACITANCE: 60 pf / ft INDUCTANCE: 0.20 µh / ft
7. Selected intrinsically safe equipment must be third party listed as intrinsically safe for the application, and have intrinsically safe entity parameters conforming with Table 1 below. The entity parameters have been assigned based on the worse case combination of all intrinsically safe circuits.

Table 1:

I.S. Equipment		Associated Apparatus
V max (or Ui)	≥	Voc or Vt (or Uo)
I max (or Ii)	≥	Isc or It (or Io)
P max, Pi	≥	Po
Ci + Ccable	≤	Ca (or Co)
Li + Lcable	≤	La (or Lo)

Entity parameters:
Voc = 16.8 Volts
Isc = 3.3 mA
Ca = 0.312 µf
La= 100 mH
Voc ≤ Vmax
Isc ≤ Imax
Ca ≥ Ci + Ccable
La ≥ Li + Lcable



NOTE:
LB = LEAD BREAKAGE MONITORING
SC = SHORT CIRCUIT MONITORING
R1 = 10K
R2 = 400 OHM TO 2K OHM
R3 = 3 MEG. OHM
R4 = 1 MEG. MAX

REF. DRAWING(S)	REV.	DATE	CAR/PROJECT #	DESCRIPTION

CONTROL DRAWING

SCALE: NONE	UPDATED BY	REDESIGNED BY	A-6888-4
SIMILAR TO:			
QUOTE #:	DRAWN BY	DESIGNED BY	
DRAWING DATE: 01/23/06	O.S.	D.P.	SHEET 1 OF 1

INGRAM PRODUCTS, INC.
904.778.1010 or 888.875.2221 • www.ingramproducts.com • sales@ingramproducts.com

3/13/06

ANLY TIMER

APT-9S WEEKLY PROGRAMMABLE TIMER

Stocked and distributed by Ingram Products Inc. Jacksonville, FL ingramproducts.com

CHARACTERISTIC :

- Weekly programmable timer
- 80 different timing settings per day
- Different weekday combinations assignment for each task
- Built-in Lithium battery prevent power outage up to one year
- Crystal oscillator for extreme accuracy
- EEPROM program memory for battery independence
- Separate twin timer feature for ON-time or ON-time-OFF-time countdown
- Daylight-saving-time function
- Backlit LCD for easy viewing
- UL, C-UL recognized and CE certified

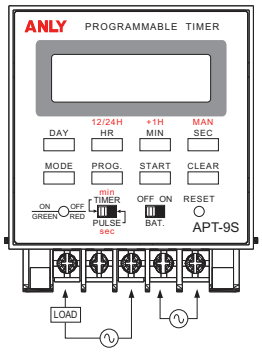
SPECIFICATION :

Operating voltage	AC/DC(V): 12~48 AC/DC(V): 100~240
Allowable operating voltage range	85~110% of rated operating voltage
Rated frequency	50 / 60 Hz
Contact rating	250VAC 7A (resistive load)
Indicator operating	ON - Green OFF - Red
Power consumption	Approx. 3.3VA
Life	Mechanical: 5,000,000 times Electrical: 100,000 times
Ambient temperature	-10 ~ +50℃
Ambient humidity	MAX 65%RH
Weight	Approx. 170g

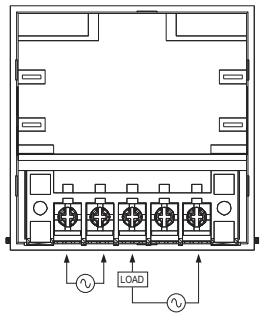
CONNECTION :

When a time switch and load power supply are separate

N type(Surface Mounting)

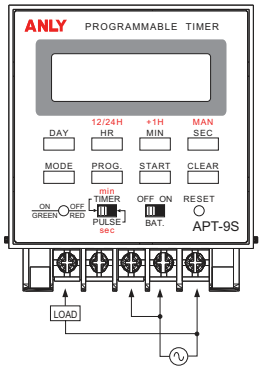


Y type(Flush Mounting)

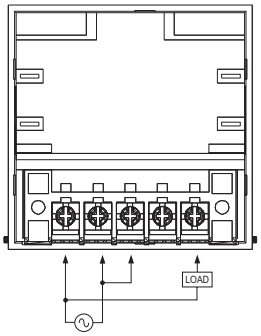


When a time switch and load power supply are the same

N type(Surface Mounting)

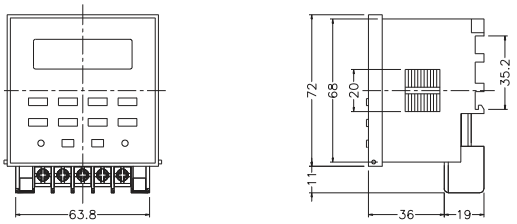


Y type(Flush Mounting)

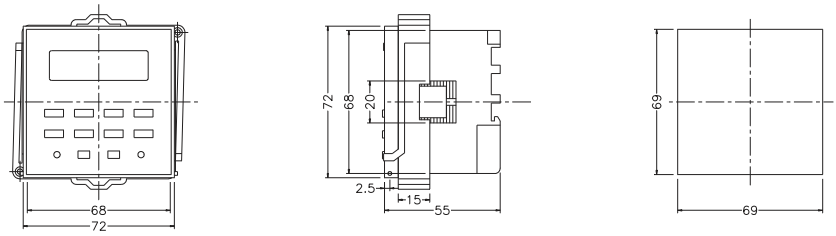


DIMENSIONS : (mm)

N type(Surface Mounting):



Y type(Flush Mounting): Using Y70 Adapter



ANLY ELECTRONICS CO., LTD.

http://www.anly.com.tw

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TEL: +886-2-2996-3202 FAX: +886-2-2996-2017

MALAYSIA BRANCH : JUSTY ELECTRONICS (M) SDN, BHD.
No.1, Jalan 6/89B, Kawasan Perindustrian Trisegi, Batu 3 1/2 Off Jalan Sungei Besi, 57100 Kuala Lumpur, Malaysia
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HONG KONG BRANCH : ANLY ELECTRONICS (HK) LTD.
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TEL: +86-21-6213-9371 FAX: +86-21-6212-3483

APT-8S / APT-9S

WEEKLY PROGRAMMABLE TIMER

User's Manual

RESTRICTIONS ON USE

When using this product in applications that require particular safety or when using this product in important facilities, please pay attention to the safety of the overall system and equipment. Install fail-safe mechanisms, perform redundancy checks and periodic inspections and adopt other appropriate safety measures when it is necessary.

SAFETY PRECAUTION This manual uses the following symbols to ensure safe operation of this timer.

⚠ **WARNING** Warnings are indicated when mishandling this controller might result in death or serious injury to user.

⚠ **CAUTION** Cautions are indicated when mishandling this controller might result in minor injury to the user, or only physical damage to the timer.

⚠ WARNING

- Note this incorrect wiring of this controller can damage it and lead to other hazards. Make sure the controller has been correctly wired before turning the power ON.
- Before wiring, or removing / mounting the controller, be sure to turn the power OFF. Failure to do so might cause electric shock.
- Do not touch electrically charged parts such as the power terminals. Doing so might cause electric shock.
- Do not disassemble the controller. Doing so might cause electric shock or faulty operation.

⚠ CAUTION

- Use the controller within the operating ranges recommended in the specification (temperature, humidity, voltage, shock, mounting direction, atmosphere and etc.). Failure to do so might cause fire or faulty operation.
- Firmly tighten the terminal screws. Insufficient tightening of terminal screws might cause electric shock or fire.

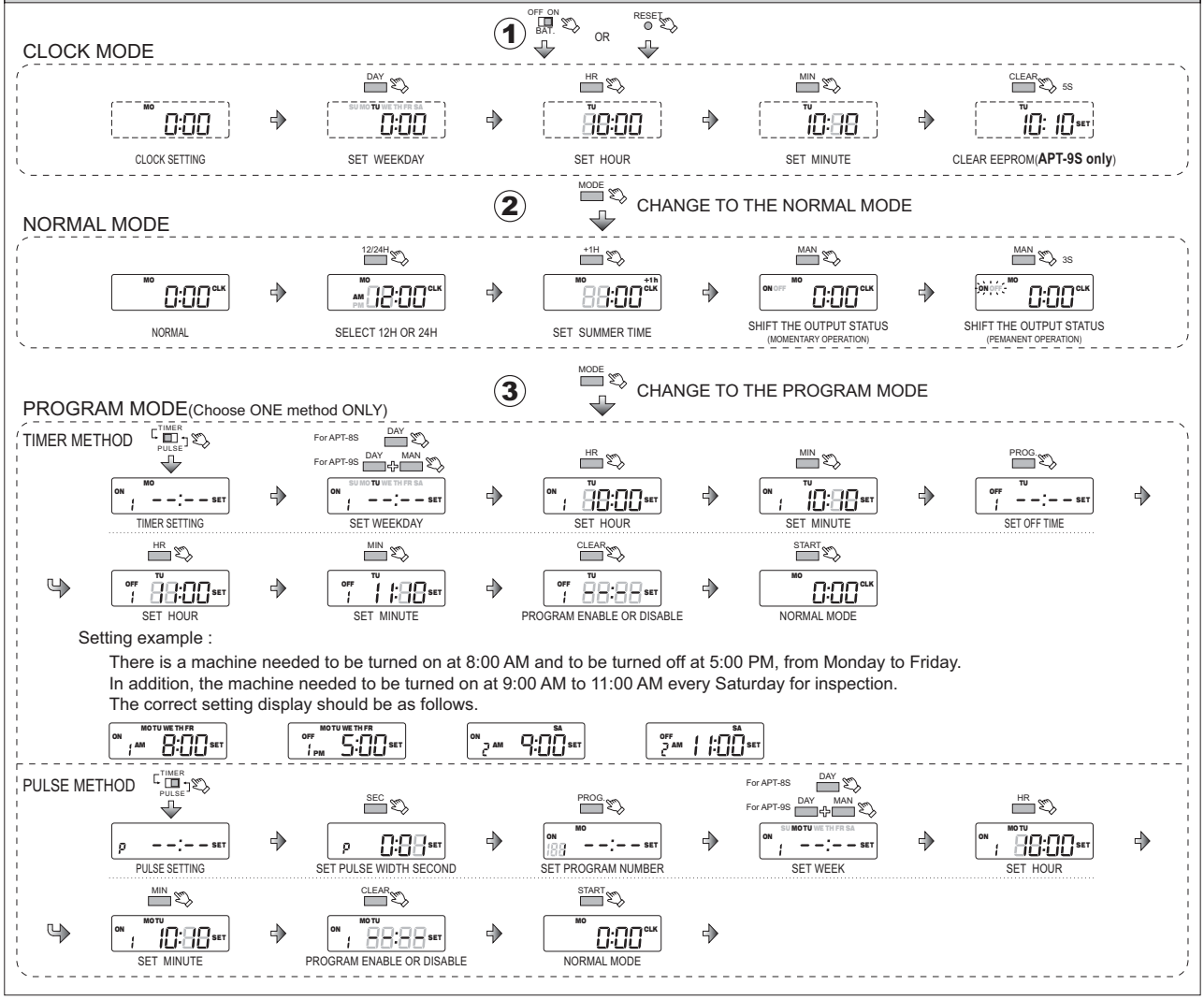
SPECIFICATIONS

Operating voltage	AC/DC : 12 ~ 48V / AC/DC : 100 ~ 240V
Allowable operating voltage range	85 ~ 110% of rated operating voltage
Rated frequency	50 / 60 Hz
Contact rating	250VAC 10A (Resistive load)
Indicator operating	POWER - Red / RELAY ON - Green
Power consumption	Approx. 3.3VA
Life	Mechanical : 5,000,000 times / Electrical : 100,000 times
Ambient temperature	-10 ~ +50 °C
Ambient humidity	MAX 85% RH
Weight	Approx. 170g

BUTTON and SWITCH FUNCTIONS

- DAY : Weekday setting
- HR : Hour setting
- MIN : Minute setting
- SEC : Second setting
- MODE : Mode status selecting
- PROG. : Program number setting
- START : Normal mode setting
- CLEAR : Clear setting
- 12/24H : 12H or 24H setting
- +1H : Daylight-saving-time setting
- MAN : Mandatory contact enable or disable
- RESET : Program reset
- TIMER : Timer mode
- PULSE : Pluse mode
- min : Unit of minute (in TWIN TIMER)
- sec : Unit of second (in TWIN TIMER)
- ON : Power on (Battery on)
- OFF : Power off (Battery off)

OPERATING FLOWCHART



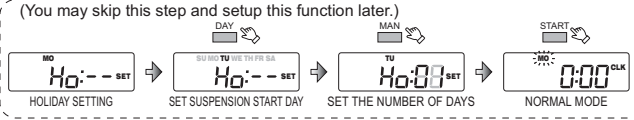
Setting example :

The factory has a buzz to remind workers their business hours, break time and etc. The buzz should be activated at 8:00, 12:00, 13:00, and 17:00 from Monday to Saturday. The buzz should be activated 10 seconds every time.
The correct setting display should be as follows.

④ MODE → CHANGE TO THE HOLIDAY SUSPENSION MODE

HOLIDAY SUSPENSION MODE

(You may skip this step and setup this function later.)



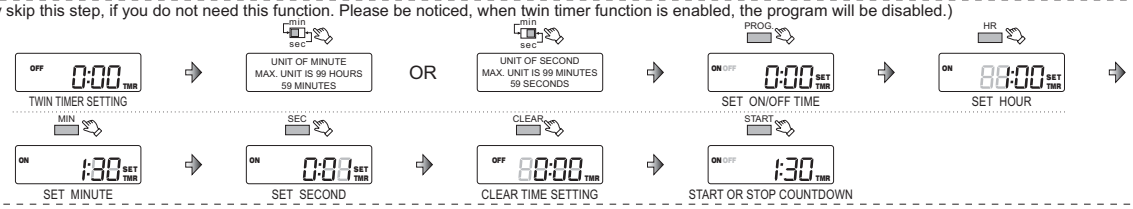
Setting example :

9 days holiday suspension from Saturday

⑤ MODE → CHANGE TO THE TWIN TIMER MODE

TWIN TIMER MODE

(You may skip this step, if you do not need this function. Please be noticed, when twin timer function is enabled, the program will be disabled.)

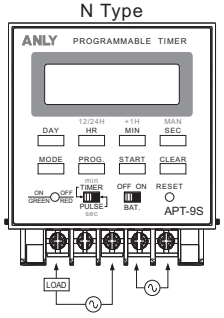


MODE → BACK TO THE CLOCK MODE

CONNECTION

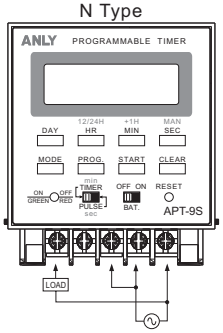
When a time switch and load power supply are separate.

N Type



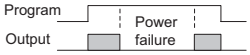
When a time switch and load power supply are the same.

N Type

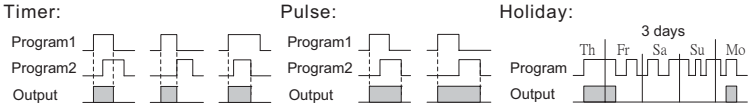


POWER BACKUP FEATURE

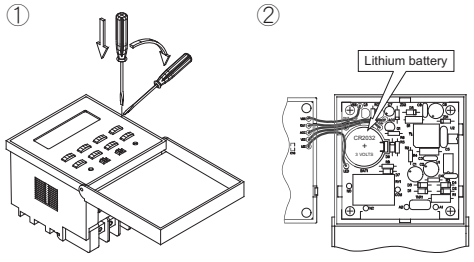
The timer retains clock operation and program memory when external power fail. With external power failure, the contact position will be held in OFF position until the power is restored. (See right chart) The program will stays ON regardless of the external power failure. (When program setting is ON) However, when external power is restored, it also restores contact status.



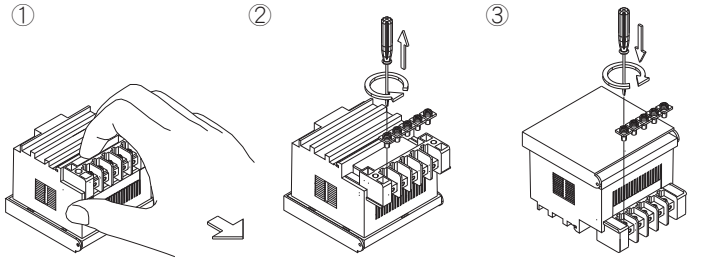
PROGRAM OVERLAPPING TIMEING CHART



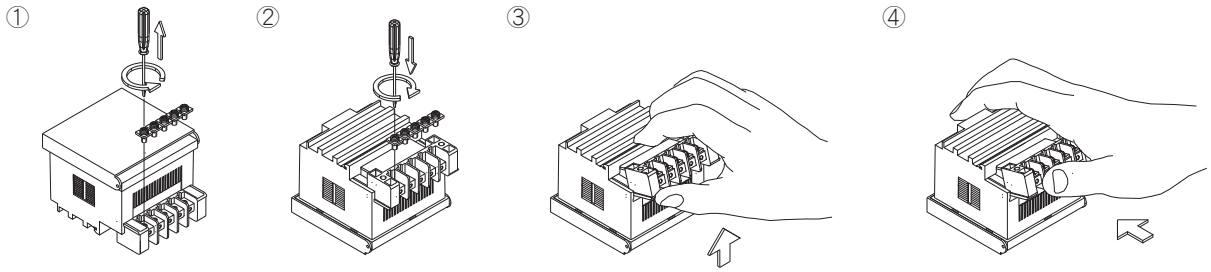
BATTERY CHANGE



CONVERT Y TYPE (Flush Mounting) TO N TYPE (Surface Mounting)



CONVERT N TYPE (Surface Mounting) TO Y TYPE (Flush Mounting)



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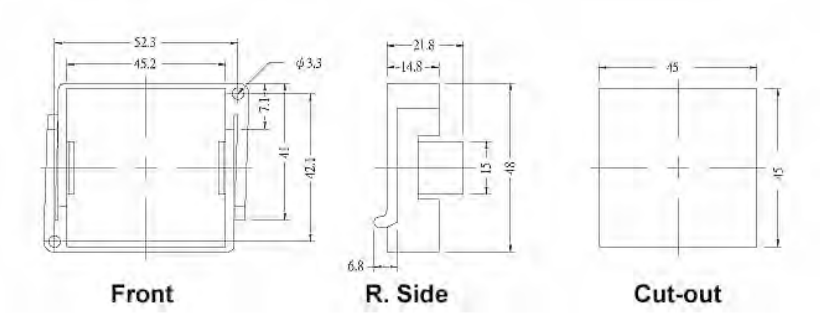
M-APT9-B-D
Printed in Taiwan

Mounting Frame for H Series Relays

INGRAM PRODUCTS, INC.

Part No. Y-50

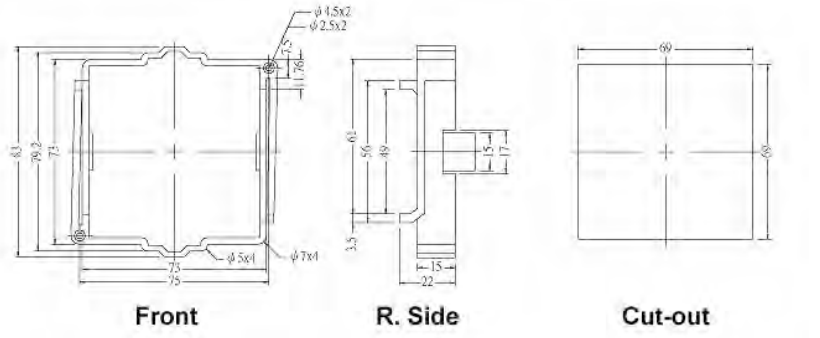
This ratcheting adjustable mounting frame will allow you to securely panel mount all H series Ingram Products analog and digital timers.



Mounting Frame for the APT-9S

Part No. Y-70

This ratcheting adjustable mounting frame will allow you to panel mount the APT-9S 7-Day Programmable Timer securely and with ease.



8725 Youngerman Court Suite 206 Jacksonville, FL 32244 ■ 888-875-2221 ph (904) 778-2444 fax ■ Website:www.ingramproducts.com ■ e-mail: info@ingramproducts.com

ANLY TIMER

H3B-RC WIDE VOLTAGE MULTI-RANGE ANALOG TIMER

Stocked and distributed by Ingram Products, Inc. Jacksonville, FL ingramproducts.com

CHARACTERISTIC :

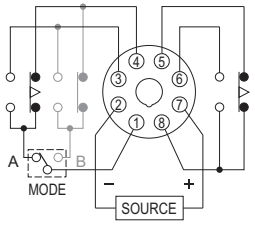
- Wide operating voltage range, from AC/DC 24V~240V
- 4 time ranges, selectable via DIP switch: 6S, 60S, 6M, 60M
- 2 modes selectable via slide switch: Mode A (2C) for DPDT time-limiting output contacts and Mode B (1A1C) for SPDT instantaneous and time-limiting output contacts
- UL, C-UL recognized and CE certified

SPECIFICATION :

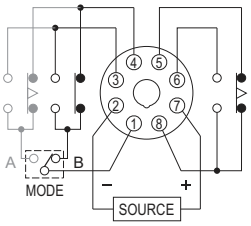
Operating voltage	AC/DC(V): 24~240
Allowable operating voltage range	85~110% of rated operating voltage
Rated frequency	50 / 60 Hz
Contact rating	250VAC 5A (resistive load)
Reset time	MAX 0.1S
Power consumption	Approx. 2VA
Life	Mechanical: 5,000,000 times Electrical: 100,000 times
Ambient temperature	-10 ~ +50℃
Ambient humidity	MAX 85%RH
Weight	Approx. 115g

CONNECTION :

2C, Mode A

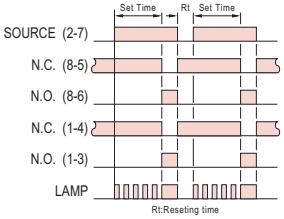


1A1C, Mode B

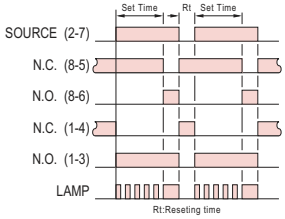


TIMING CHART :

2C, Mode A

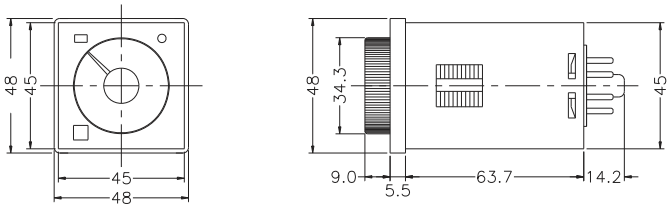


1A1C, Mode B

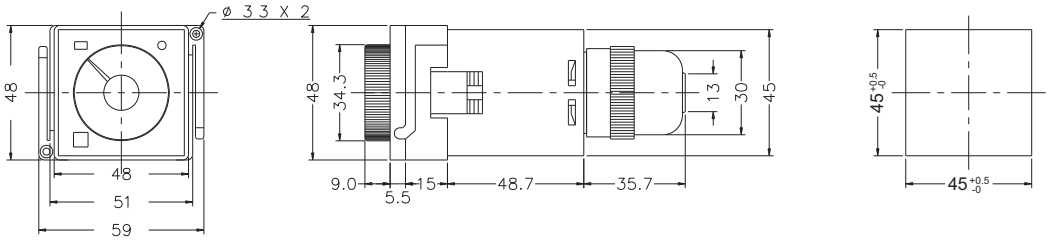


DIMENSIONS : (mm)

N type(Surface Mounting): Using P2CF-08 Socket or PF085A Socket



Y type(Flush Mounting): Using Y50 Frame & US-08 Socket or P3G-08 Socket



ANLY ELECTRONICS CO., LTD.

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TEL: +86-21-6213-9371 FAX: +86-21-6212-3483

ANLY TIMER

H3C-R MULTI-FUNCTION ANALOGUE TIMER

CHARACTERISTICS :

- Wide operating voltage range in a single unit, AC/DC 24V~240V
- 8 field-selectable output modes for various applications
- 14 field-selectable time range, from 0.2 second to 300 hour
- Includes 2C output contacts, instantaneous output contact, flicker and interval modes
- Short body design, about 68 mm
- Adapter Y-57 for different flush mount
- UL, C-UL recognized and CE certified

SPECIFICATION :

Operating voltage	AC/DC(V): 24~240
Allowable operating voltage range	85~110% of rated operating voltage
Rated frequency	50 / 60 Hz
Contact rating	250VAC 5A (resistive load)
Reset time	MAX 0.1s
Power consumption	Approx. 3VA
Life	Mechanical: 5,000,000 times Electrical: 100,000 times
Ambient temperature	-10 ~ +50°C
Ambient humidity	MAX 85%RH
Weight	Approx. 100g

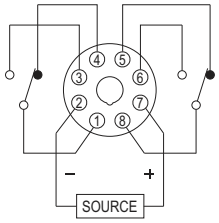
TYPE SELECTION :

Type	H3C-R	H3C-R11
Time range	1.2s / 3s / 12s / 30s / 1.2m / 3m / 12m / 30m / 1.2h / 3h / 12h / 30h / 120h / 300h	
Output contact	2C or 1A1C	2C(1A1C) + G Type
External Reset	- - - -	○
External Start	- - - -	○
External Gate	- - - -	○

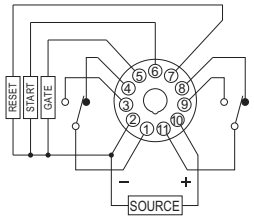
Product is subject to change without notice.

CONNECTION :

H3C-R



H3C-R11

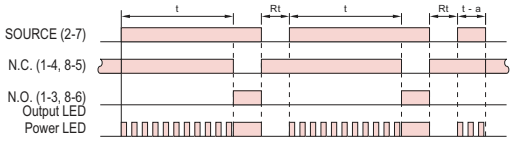


TIMING CHART :

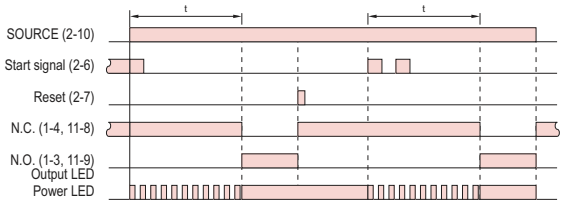
H3C-R

H3C-R11

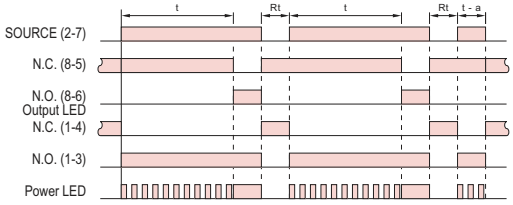
Output mode **A** : ON delay(2C)



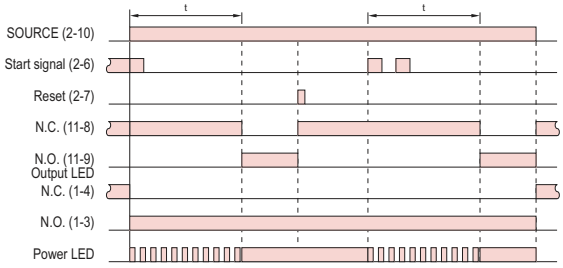
Set time = t , t - a < t , Reset time = Rt



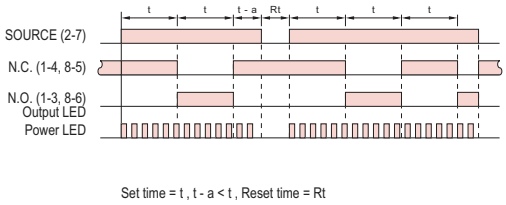
Output mode **A4** : ON delay(1A1C)



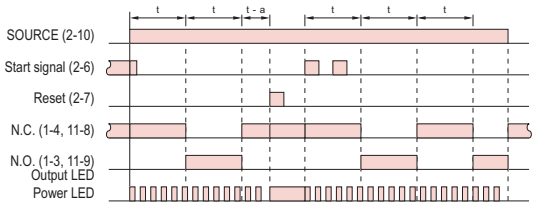
Set time = t , t - a < t , Reset time = Rt



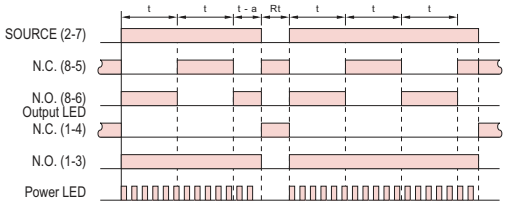
Output mode **B** : Repeat cycle OFF start(2C)

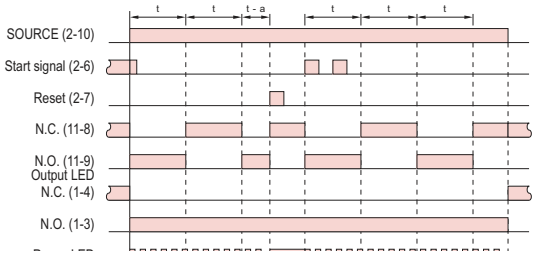


Set time = t , t - a < t , Reset time = Rt



Output mode **B3** : Repeat cycle ON start(1A1C)

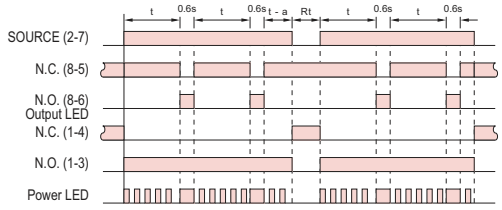




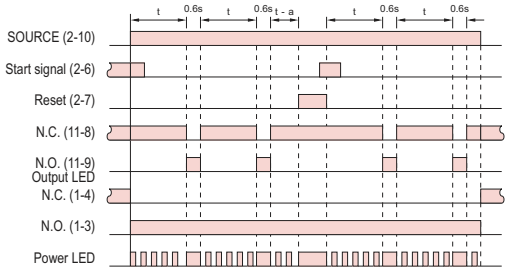
H3C-R

H3C-R11

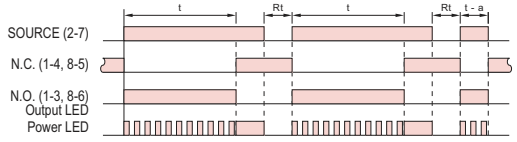
Output mode **B4** : Repeat one shot output(1A1C)



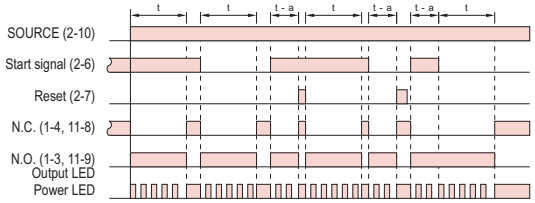
Set time = t , t - a < t , Reset time = Rt



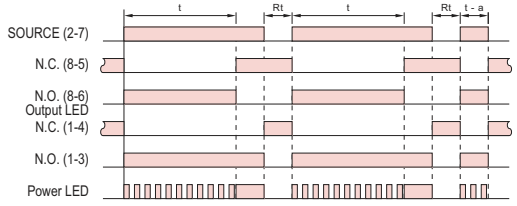
Output mode **C** : Signal ON/OFF delay(2C)



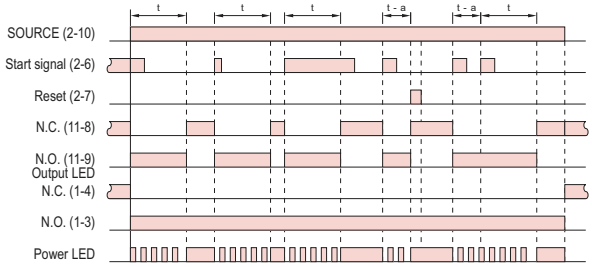
Set time = t , t - a < t , Reset time = Rt



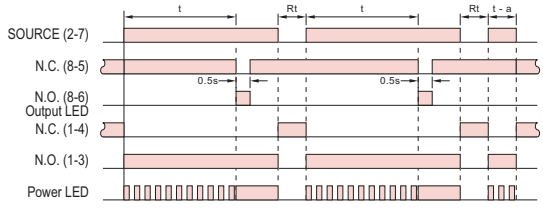
Output mode **E** : Interval(1A1C)



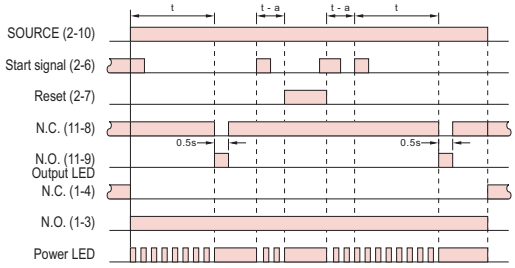
Set time = t , t - a < t , Reset time = Rt



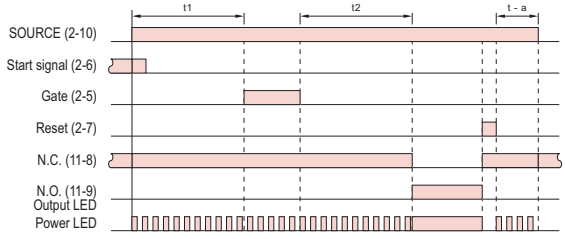
Output mode **J** : One shot output(1A1C)



Set time = t , t - a < t , Reset time = Rt



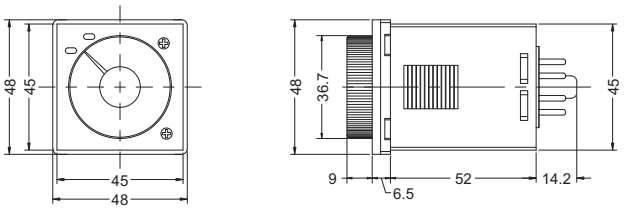
Application of Gate terminal :



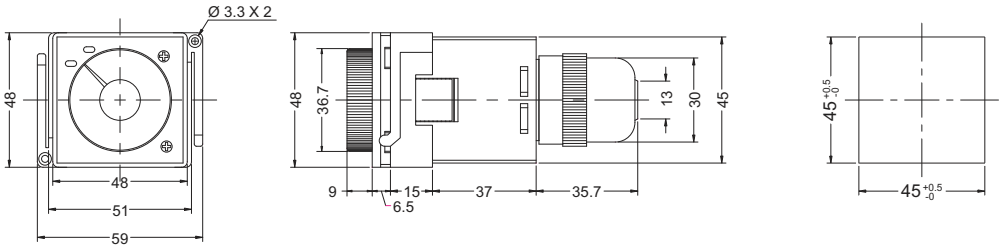
Set time = t = t1 + t2 , t - a < t

DIMENSIONS : (mm)

N type(Surface Mounting): Using P2CF-08 , PF085A Socket or
PF113A Socket(for H3C-R11 use only)



Y type(Flush Mounting): Using Y50 Frame & US-08 Socket , P3G-08 Socket



ANLY ELECTRONICS CO., LTD.

http://www.anly.com.tw

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No.19, Lane 202, Fushou St., Shinjuang City, Taipei, Taiwan 242
TEL: +886-2-2996-3202 FAX: +886-2-2996-2017

MALAYSIA BRANCH : **JUSTY ELECTRONICS (M) SDN, BHD.**
No.1, Jalan 6/89B, Kawasan Perindustrian Trisegi, Batu 3 1/2 Off Jalan Sungei Besi, 57100 Kuala Lumpur, Malaysia
TEL: +60-3-7983-5758 FAX: +60-3-7981-5052

HONG KONG BRANCH : **ANLY ELECTRONICS (HK) LTD.**
Flat K, 13/F, Edward Mansion, 141 Prince Edward Road W., Kowloon, Hong Kong
TEL: +852-2397-2505 FAX: +852-2397-6080

CHINA SALES OFFICE : **ANLY TECHNOLOGY (WUXI) CO., LTD.**
Room 3D, Zhaofeng Building, No.9, Alley 396, Changning Rd., Changning District, Shanghai, China 200042
TEL: +86-21-6213-9371 FAX: +86-21-6212-3483

ANLY TIMER

H5CLR MULTI-FUNCTION DIGITAL TIMER

CHARACTERISTICS :

- Eleven field-selectable output modes accommodate a wide variety of applications
- 7-segment-display for clear display and effective monitoring
- All parameters set by scrollthrough menus accessed from the front panel
- Field-selectable time ranges from 0.001 second to 9999 hours
- Precision control possible to 0.001 second
- Four levels of key protection provided
- Count Up or Count Down mode user selectable
- Memory function available
- UL, C-UL recognized and CE certified

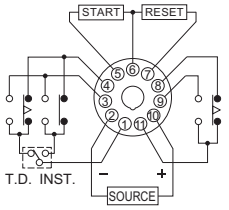
SPECIFICATION :

Operating voltage	AC/DC(V): 12~48 or 100~240
Allowable operating voltage range	85~110% of rated operating voltage
Rated frequency	50 / 60 Hz
Contact rating	250VAC 5A (resistive load)
Reset time	MAX 0.1s
Reset time	Approx. 2.5VA
Life	Mechanical: 5,000,000 times Electrical: 100,000 times
Ambient temperature	-10 ~ +50℃
Ambient humidity	MAX 85%RH
Weight	Approx. 120g

TYPE SELECTION :

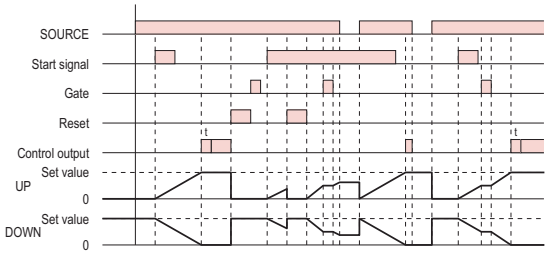
Type	H5CLR-11
Time range	9.999s / 99.99s / 999.9s / 9999s / 999.9m / 9999m / 999.9h / 9999h / 99m59s / 99h59m
Output contact	2C(1A1C) + G Type
Memory	○
External Reset	○
External Start	○

CONNECTION :



TIMING CHART :

Output mode **A** : Signal ON delay 1 (Timer resets when power comes ON.)

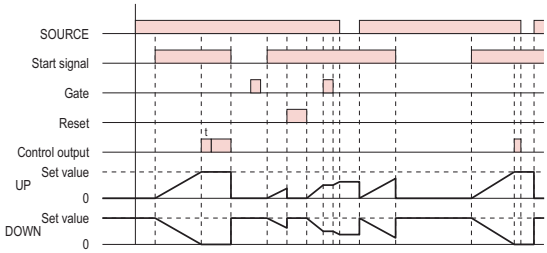


Timing starts when the start signal goes ON.

While the start signal is ON, the timer starts when the power comes ON or when the reset input goes OFF.

The control output is controlled using a sustained or one-shot time period.

Output mode **A-1** : Signal ON delay 2 (Timer resets when power comes ON.)

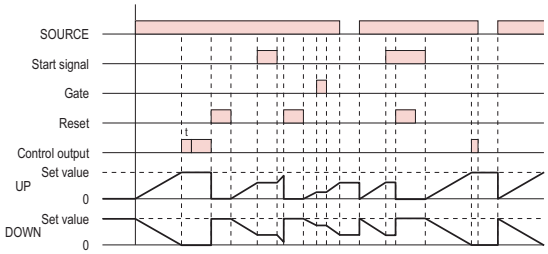


Timing starts when the start signal goes ON, and is reset when the start signal goes OFF.

While the start signal is ON, the timer starts when the power comes ON or when the reset input goes OFF.

The control output is controlled using a sustained or one-shot time period.

Output mode **A-2** : Power ON delay 1 (Timer resets when power comes ON.)

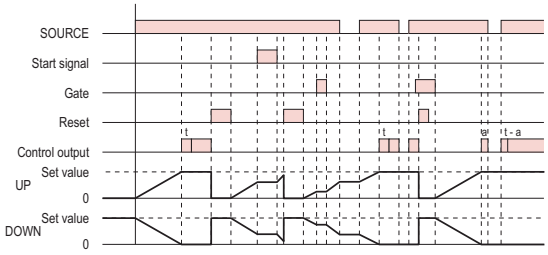


Timing starts when the reset input goes OFF.

The start signal disables the timing function (ie., same function as the gate input).

The control output is controlled using a sustained or one-shot time period.

Output mode **A-3** : Power ON delay 2 (Timer dose not reset when power comes ON.)

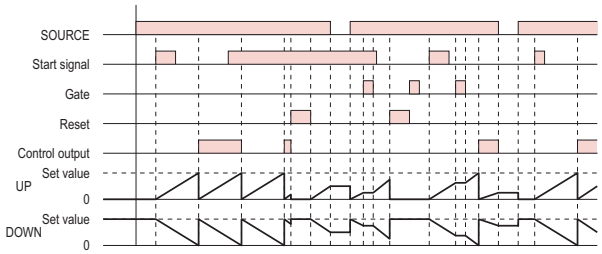


Timing starts when the reset input goes OFF.

The start signal disables the timing function (ie., same function as the gate input).

The control output is controlled using a sustained or one-shot time period.

Output mode **B** : Repeat cycle 1 (Timer resets when power comes ON.)

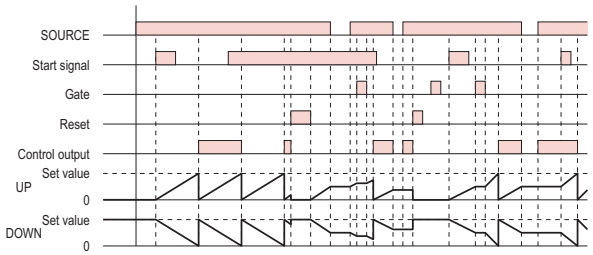


Timing starts when the start signal goes ON.

The status of the control output is reversed when time is up (OFF at start).

While the start signal is ON, the timer starts when the power comes ON or when the reset input goes OFF.

Output mode **B-1** : Repeat cycle 2 (Timer dose not reset when power comes ON.)

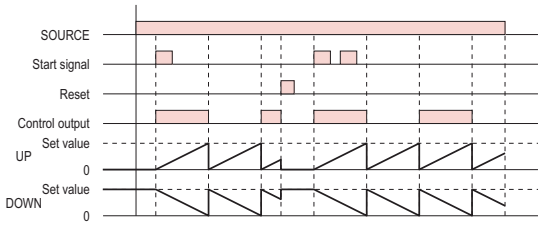


Timing starts when the start signal goes ON.

The status of the control output is reversed when time is up (OFF at start).

While the start signal is ON, the timer starts when the power comes ON or when the reset input goes OFF.

Output mode **B-2** : Repeat cycle ON start (Timer resets when power comes ON.)

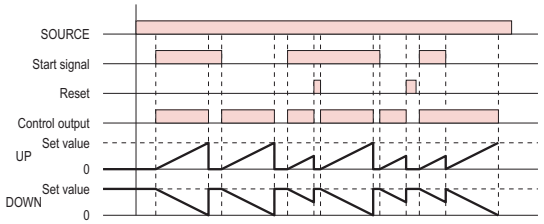


Timing starts when the start signal goes ON.

The status of the control output is reversed when time is up (OFF at start).

While the start signal is ON, the timer starts when the power comes ON or when the reset input goes OFF.

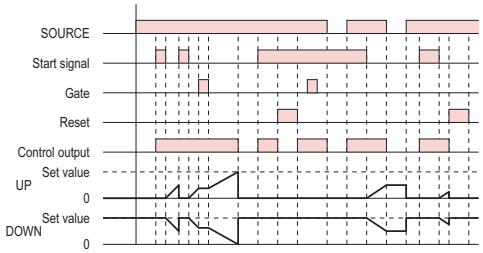
Output mode **C** : Signal ON/OFF delay (Timer resets when power comes ON.)



Timing starts when the start signal goes ON or OFF.

The status of the control output is ON when the start signal goes ON or OFF.

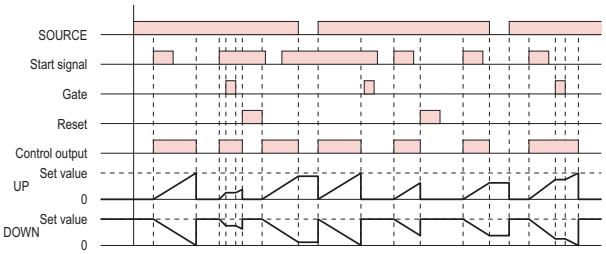
Output mode **D** : Signal OFF delay (Timer resets when power comes ON.)



The control output is ON when the start signal is ON(except when the power is OFF or the reset is ON).

The timer is reset when the time is up.

Output mode **E** : Interval (Timer resets when power comes ON.)

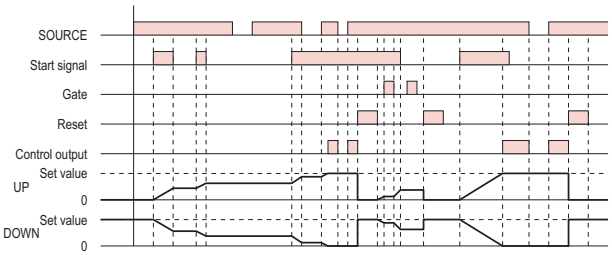


Timing starts when the start signal comes ON.

The control output is reset when time is up.

While the start signal is ON, the timer starts when power comes ON or when the reset input goes OFF.

Output mode **F** : Cumulative (Timer does not reset when power comes ON.)

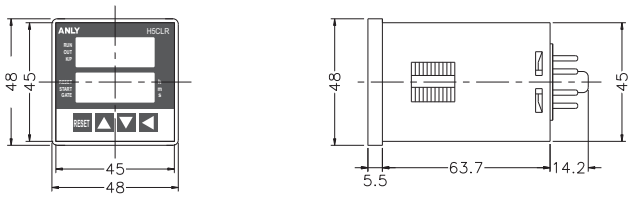


Start signal enables timing (timing is stopped when the start signal is OFF or when the power is OFF)

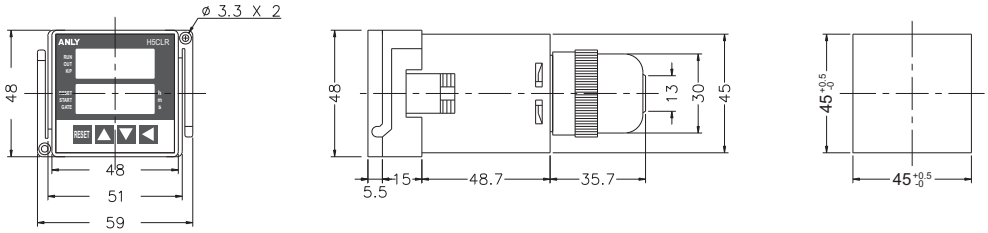
A sustained control output is used.

DIMENSIONS : (mm)

N type(Surface Mounting): Using PF113A or PF113A-E Socket



Y type(Flush Mounting): Using Y50 Frame & P3G-11 Socket



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TEL: +86-21-6218-3300 FAX: +86-21-6217-5911

H5CLR-11

MULTI-FUNCTION DIGITAL TIMER

User's Manual

RESTRICTIONS ON USE

When using this product in applications that require particular safety or when using this product in important facilities, please pay attention to the safety of the overall system and equipment. Install fail-safe mechanisms, perform redundancy checks and periodic inspections and adopt other appropriate safety measures when it is necessary.

SAFETY PRECAUTION This manual uses the following symbols to ensure safe operation of this timer.

⚠ **WARNING** Warnings are indicated when mishandling this product might result in death or serious injury to user.

⚠ **CAUTION** Cautions are indicated when mishandling this product might result in minor injury to the user, or only physical damage to the timer.

⚠ WARNING

- Note this incorrect wiring of this product can damage it and lead to other hazards. Make sure the product has been correctly wired before turning the power ON.
- Before wiring, or removing / mounting the product, be sure to turn the power OFF. Failure to do so might cause electric shock.
- Do not touch electrically charged parts such as the power terminals. Doing so might cause electric shock.
- Do not disassemble the product. Doing so might cause electric shock or faulty operation.

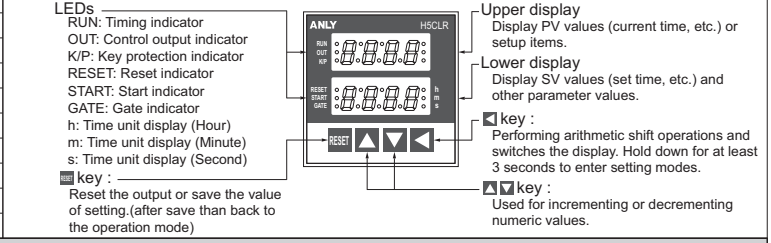
⚠ CAUTION

- Use the product within the operating ranges recommended in the specification (temperature, humidity, voltage, shock, mounting direction, atmosphere and etc.). Failure to do so might cause fire or faulty operation.
- Firmly tighten the wires to the socket. Insufficient tightening of the wires to the socket might cause fire.

SPECIFICATIONS

Operating voltage	AC/DC : 12～48V / AC/DC : 100～240V
Allowable operating voltage range	85 ~ 110% of rated operating voltage
Rated frequency	50 / 60Hz
Contact rating	250VAC 5A (Resistive load)
Reset time	MAX 0.1s
Power consumption	Approx. 2.5VA
Life	Mechanical : 5,000,000 times / Electrical : 100,000 times
Ambient temperature	-10～+50°C
Ambient humidity	MAX 85% RH
Weight	Approx. 120g

NAMES AND FUNCTIONS OF FACEPLATE



SETTING PROCEDURE

POWER ON or RESET Reset

SPECIAL FUNCTION KEY

PRESS FOR 3s Switch ON / OFF Key protection

PRESS FOR 3s Switch to input setting mode

(1)Stop — ***PRESS FOR 3s*** Switch to input setting mode

or

(2)Timing — RESET + ◀ ***PRESS FOR 3s*** Switch to input setting mode

OUTPUT TIME

4 — Select output time

4-1 Hold 4-2 0.1s 4-3 0.5s 4-4 1s 4-5 5s 4-6 10s 4-7 15s 4-8 20s

※ Not functionable on MODE C,D,E and F

Switch to input signal time setting mode ◀ or RESET Save and back to the operation mode

TIME RANGE

1 — Select the time range

1-1 9.999s 1-2 99.99s 1-3 999.9s 1-4 9999s 1-5 999.9m 1-6 9999m 1-7 999.9h 1-8 9999h 1-9 99m59s 1-A 99h59m

Switch to count up/down setting mode ◀ or RESET Save and back to the operation mode

INPUT SIGNAL TIME

5 — Select input signal time

5-1 20ms 5-2 1ms

Switch to key protection level setting mode ◀ or RESET Save and back to the operation mode

UP / DOWN MODE

2 — Select count up or count down

2-1 Count up 2-2 Count down

Switch to output setting mode ◀ or RESET Save and back to the operation mode

KEY PROTECTION LEVEL

6 — Select key protection level

6-1 Lock function key ◀
6-2 Lock reset key RESET
6-3 Lock preset value key ▲▼
6-4 Lock all key

Switch to output contact setting mode ◀ or RESET Save and back to the operation mode

OUTPUT MODE

3 — Select output mode

3-1 Mode A 3-2 Mode A1 3-3 Mode A2 3-4 Mode A3 3-5 Mode B 3-6 Mode B1 3-7 Mode B2 3-8 Mode C 3-9 Mode D 3-A Mode E 3-b Mode F

See reverse page for more details

Switch to output time setting mode ◀ or RESET Save and back to the operation mode

OUTPUT CONTACT

7 — Select output contact

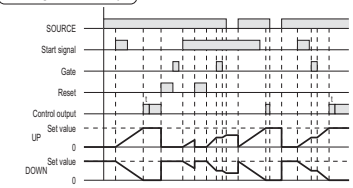
7-1 2C 7-2 1A1C

Switch to time range setting mode ◀ or RESET Save and back to the operation mode

Stocked and distributed by Ingram Products Inc. Jacksonville, FL ingramproducts.com

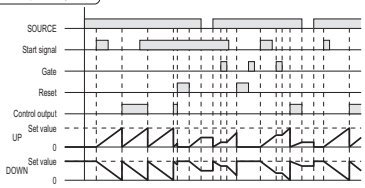
TIMING CHART(Output mode)

A : Signal ON delay 1 (Timer resets when power comes ON.)



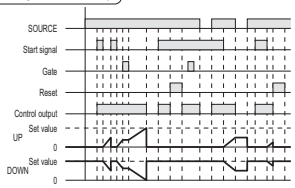
Timing starts when the start signal goes ON. *Note1
The control output is controlled using a sustained or one-shot time period.

B : Repeat cycle 1 (Timer resets when power comes ON.)



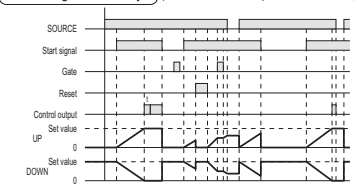
Timing starts when the start signal goes ON. *Note1
The status of the control output is reversed when time is up (OFF at start).

D : Signal OFF delay (Timer resets when power comes ON.)



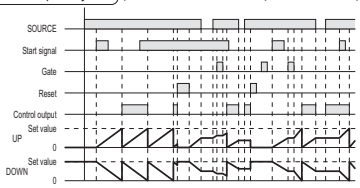
The control output is ON when the start signal is ON (except when the power is OFF or the reset is ON).
The timer is reset when the time is up.

A-1 : Signal ON delay 2 (Timer resets when power comes ON.)



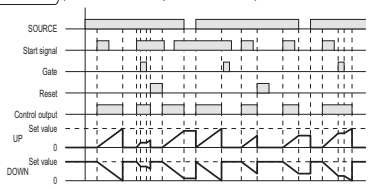
Timing starts when the start signal goes ON, and is reset when the start signal goes OFF. *Note1
The control output is controlled using a sustained or one-shot time period.

B-1 : Repeat cycle 2 (Timer dose not reset when power comes ON.)



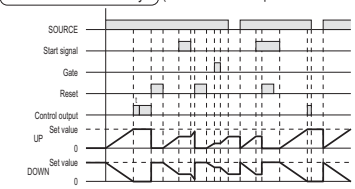
Timing starts when the start signal goes ON. *Note1
The status of the control output is reversed when time is up (OFF at start).

E : Interval (Timer resets when power comes ON.)



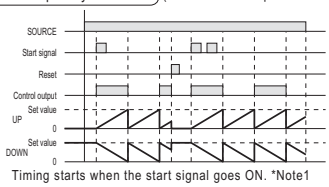
Timing starts when the start signal comes ON. *Note1
The control output is reset when time is up.

A-2 : Power ON delay 1 (Timer resets when power comes ON.)



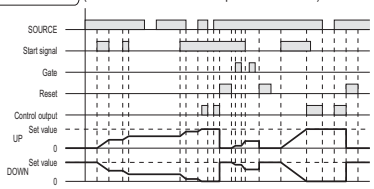
Timing starts when the reset input goes OFF.
The start signal disables the timing function (ie., same function as the gate input).
The control output is controlled using a sustained or one-shot time period.

B-2 : Repeat cycle ON start (Timer resets when power comes ON.)



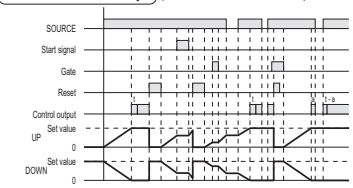
Timing starts when the start signal goes ON. *Note1
The status of the control output is reversed when time is up (OFF at start).

F : Cumulative (Timer does not reset when power comes ON.)



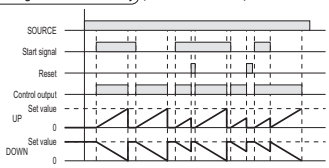
Start signal enables timing (timing is stopped when the start signal is OFF or when the power is OFF)
A sustained control output is used.

A-3 : Power ON delay 2 (Timer dose not reset when power comes ON.)



Timing starts when the reset input goes OFF.
The start signal disables the timing function (ie., same function as the gate input).
The control output is controlled using a sustained or one-shot time period.

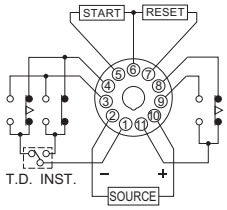
C : Signal ON/OFF delay (Timer resets when power comes ON.)



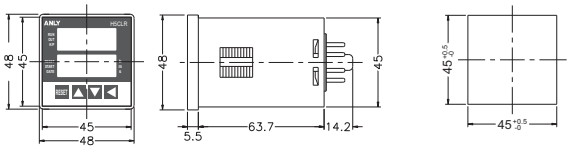
Timing starts when the start signal goes ON or OFF.
The status of the control output is ON when the start signal goes ON or OFF.

*Note1. While the start signal is ON, the timer starts when power comes ON or when the reset input goes OFF.

CONNECTION



DIMENSION(mm)



AC or DC Hour Meter

Part No. :HRM1248ADRSS, HRM90230ACRSS

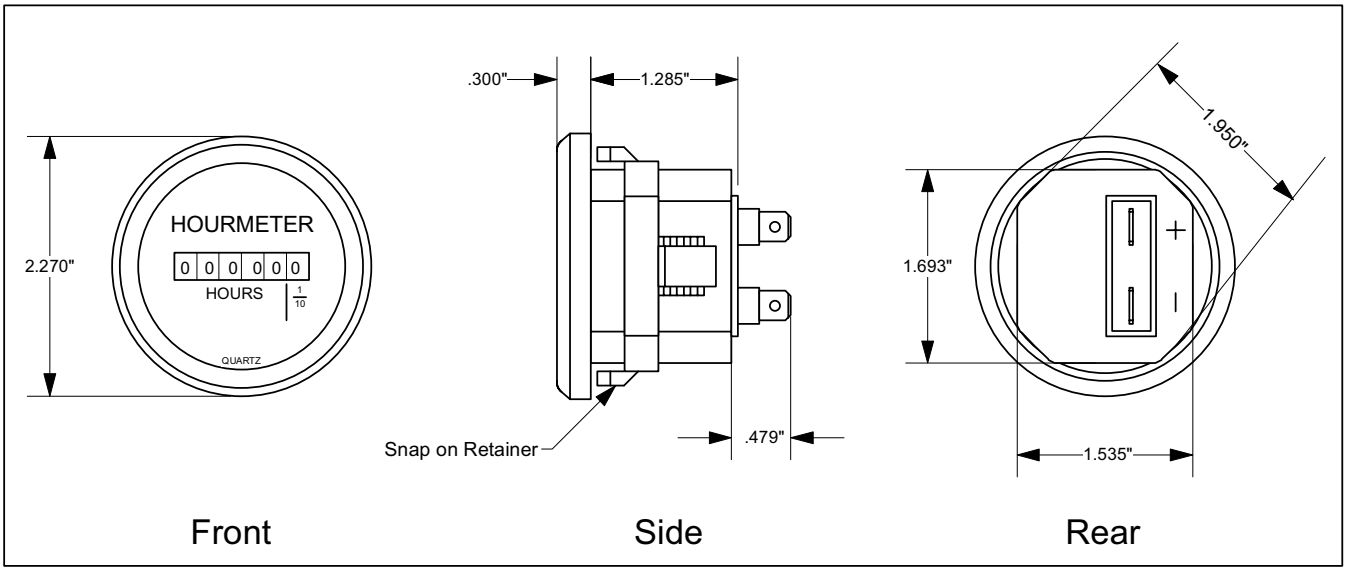
Provides precise tamper proof record of operating time of engines and other electromechanical devices. It mounts in standard 2" opening or 1.5" knock out. Typical use is to monitor running time for vehicles and machinery for maintenance scheduling, warranty, rental use and service records. Locking snap-on retainer secures meter firmly to panel.

Features

- Hermetically sealed to keep out dirt and corrosive gases
- 6 digit display
- Low power consumption
- No battery needed
- Accurate quartz crystal oscillator
- Solid state drive circuits
- Shock resistant to 8g
- Wide temperature range
- 1/4" Quick Connect terminals

Technical Specifications

- Voltage:
  12-48V DC/AC - HRM1248ADRSS
  120-230VAC (50-60Hz) - HRM90230ACRSS
- Power consumption:
  10 mA @ 12VDC
  5 mA @ 48VDC
  250mA @ 120VAC (Avg.)
- Shock Operating: 8 G (10-75HZ 1-8 G)
- Accuracy: ±1 Minute per 24 hours
- Operating Temp: -25°C - 65°C
- Fits 2.00" diameter hole or 1.5" Knock Out
- UL Recognized Component



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AC or DC Hour Meter

Part No. :HRM1248ADRRP, HRM90230ACRRP

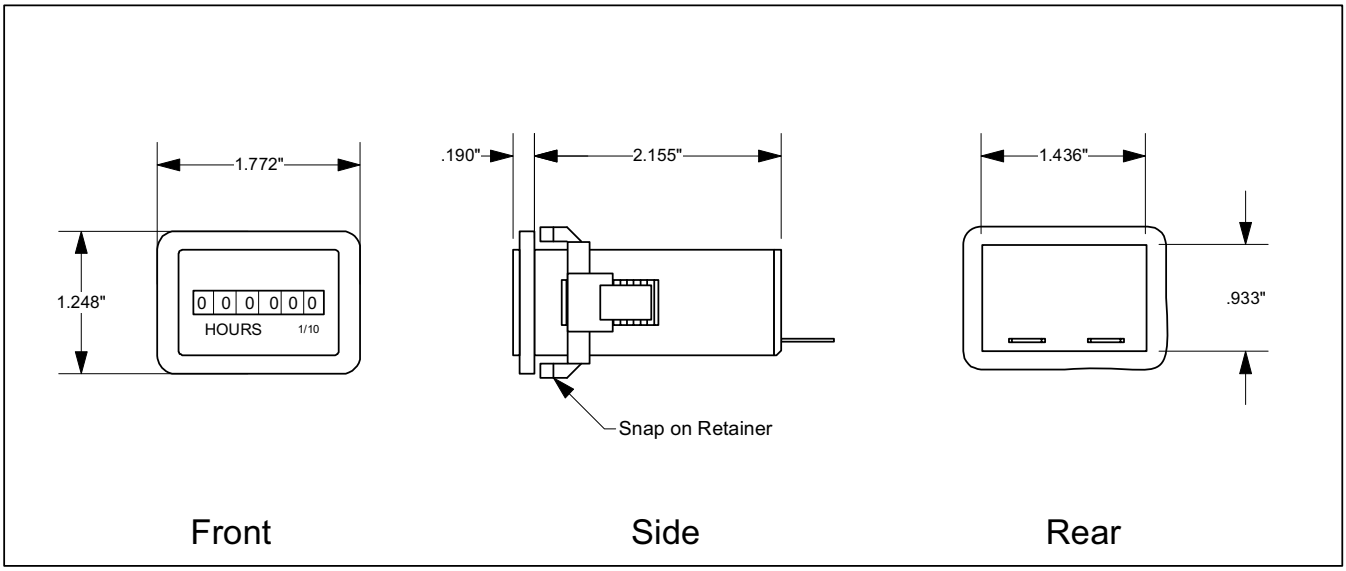
Provides precise tamper proof record of operating time of engines and other electromechanical devices. It mounts in 1.45" x .95" cut out. Typical use is to monitor running time for vehicles and machinery for maintenance scheduling, warranty, rental use and service records. Locking snap-on retainer secures meter firmly to panel.

Features

- Hermetically sealed to keep out dirt and corrosive gases
- 6 digit display
- Low power consumption
- No battery needed
- Accurate quartz crystal oscillator
- Solid state drive circuit
- Shock resistant to 8g
- Wide temperature range
- 1/4" Quick connect terminals

Technical Specifications

- Voltage:
  12-48V DC/AC - HRM1248ADRRP
  120-230VAC (50-60 Hz) - HRM90230ACRRP
- Power consumption:
  2 mA @ 12VDC
  10 mA @ 48VDC
  350mA @ 120VAC (Avg.)
- Shock Operating: 8 G (10-75HZ 1-8 G)
- Accuracy: ±1 Minute per 24 hours
- Operating Temp: -25°C - 65°
- Panel cut out: 1.45" x .95"
- UL Recognized Component



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AC or DC Hour Meter

Part No. :HRM1248ADRRSP, HRM90230ACRRSP

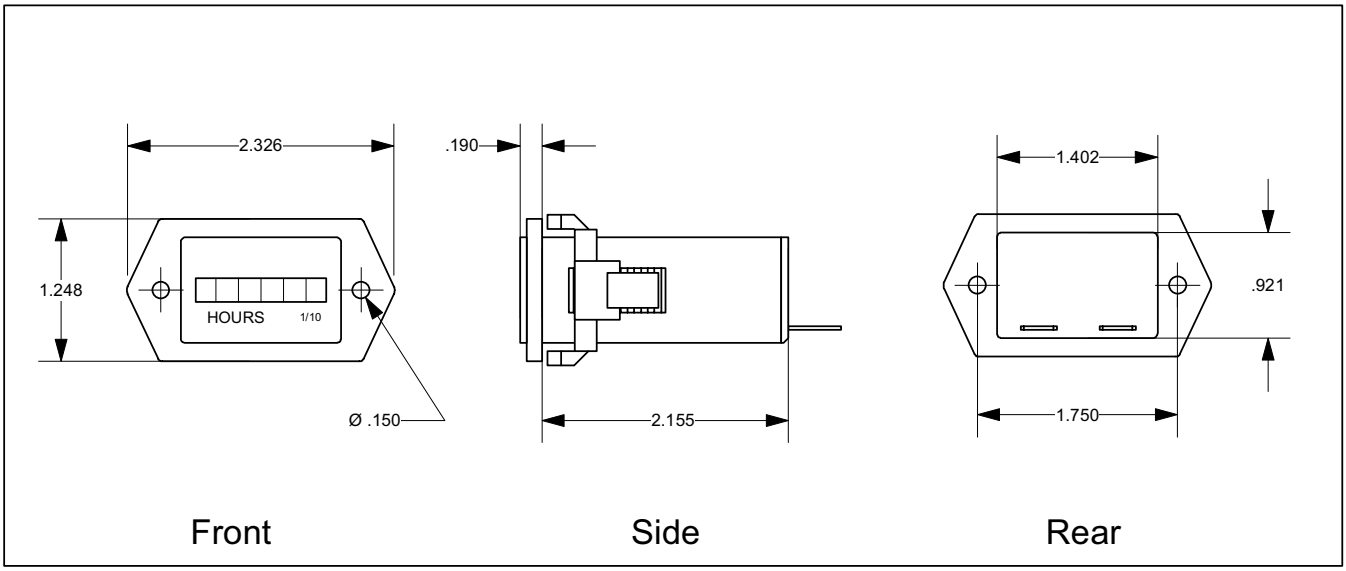
Provides precise tamper proof record of operating time of engines and other electromechanical devices. It mounts in 1.45" x .95" cut out. Typical use is to monitor running time for vehicles and machinery for maintenance scheduling, warranty, rental use and service records. Convenient screw mount. Also includes snap-on retainer mount.

Features

- Hermetically sealed to keep out dirt and corrosive gases
- 6 digit display
- Low power consumption
- No battery needed
- Accurate quartz crystal oscillator
- Solid state drive circuit
- Shock resistant to 8g
- 1/4" Quick Connect terminals

Technical Specifications

- Voltage:
  12-48V DC/AC - HRM1248ADRRSP
  120-230VAC (50-60Hz) - HRM90230ACRRSP
- Power consumption:
  2 mA @ 12VDC
  10 mA @ 48VDC
  350mA @ 120VAC (Avg.)
- Shock Operating: 8 G (10-75HZ 1-8 G)
- Accuracy: ±1 Minute per 24 hours
- Operating Temp: -25°C - 65°
- Panel cutout: 1.45" x .95"
- UL Recognized Component



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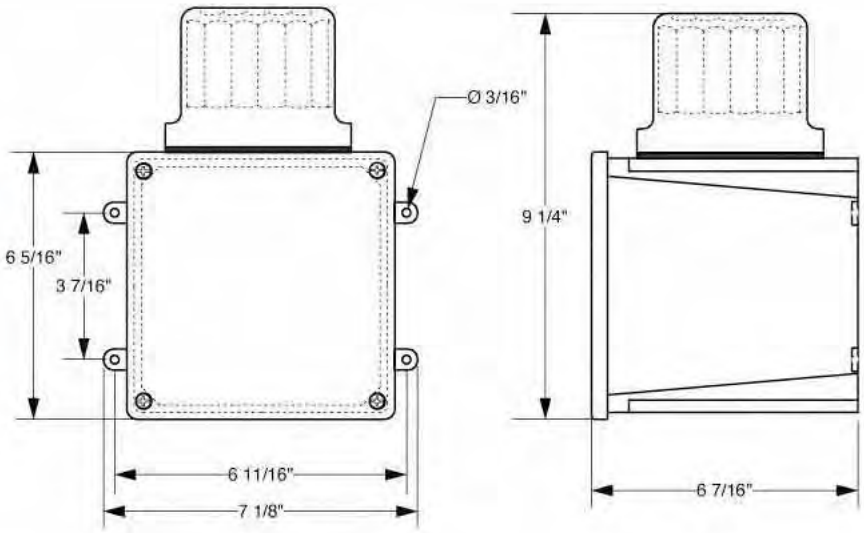
Visual Alarm



VLX25S
Kit includes:
- UL Type 4X 6x6x6" box with external mounting feet
- Hole cut out for Ingram's LX25
- LX25 - UL Type 4X, 25 watt, 120 VAC light*
- Includes all necessary hardware except mounting hardware for box.

VLX40FS
Kit includes:
- UL Type 4X 6x6x6" box with external mounting feet
- Hole cut out for Ingram's LX40F
- LX40F - UL Type 4X, 40 watt, 120 VAC light with SSF150W flasher*
- SSF150W - UL Recognized , 120 VAC, 75 Flashes per min. solid state flasher
- Includes all necessary hardware except mounting hardware for box.

Lens available in red, blue, green, amber, or clear. Please specify color at time of order. If no color is specified, red is standard.

042408

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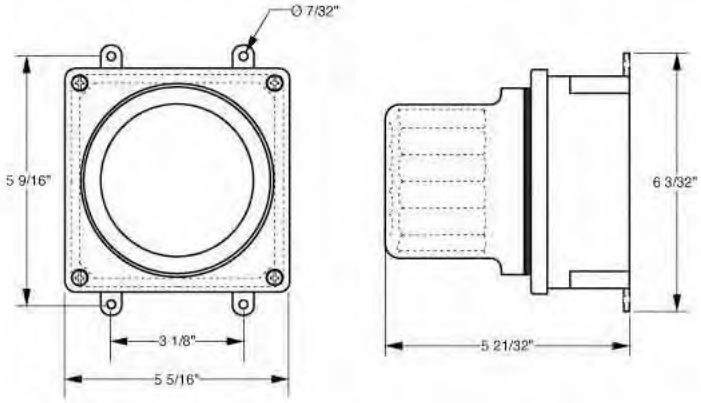
Visual Alarm



VLX25C
Kit includes:
- UL Type 4X 5x5x2" box with external mounting feet
- Hole cut out for Ingram's LX25
- LX25 - UL Type 4X, 25 watt, 120VAC light*
- Includes all necessary hardware except mounting hardware for box.

VLX40FC
Kit includes:
- UL Type 4X 5x5x2" box with external mounting feet
- Hole cut out for Ingram's LX40F
- LX40F - UL Type 4X, 40 watt, 120 VAC light with SSF150W flasher*
- SSF150W - UL Recognized, 120 VAC , 75 flashes per min. solid state flasher
- Includes all necessary hardware except mounting hardware for box.

*Lens available in Red, Blue, Green, Amber, or clear. Please specify color at time of order. If no color is specified Red is standard.

042308

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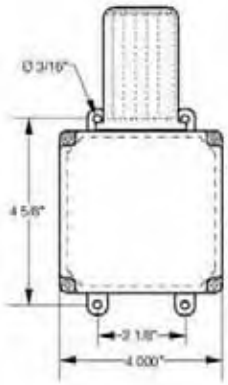
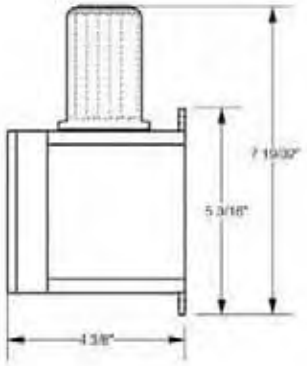
Visual Alarm





VMX15T
Kit includes:
- UL Type 4X 4x4x4" box with external mounting feet
- Hole cut out for Ingram's MX15
- MX15 - UL Type 4X, 15 watt, 120 VAC light*
- Includes all necessary hardware except mounting hardware for box.

VMX25FT
Kit includes:
- UL Type 4X 4x4x4" box with external mounting feet
- Hole cut out for Ingram's MX25F
- MX25F - UL Type 4X, 25 watt, 120 VAC light with SSF150W flasher*
- SSF150W - UL Recognized , 120 VAC, 75 Flashes per min. solid state flasher
- Includes all necessary hardware except mounting hardware for box.

*Lens available in Red and Amber.

042308

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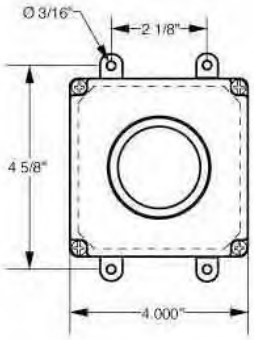
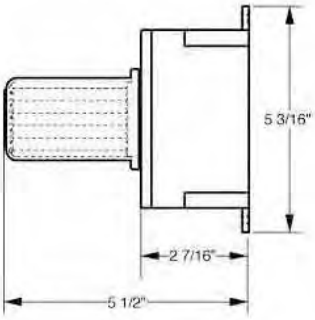
Visual Alarm





VMX15C
Kit includes:
- UL Type 4X 4x4x2" box with external mounting feet
- Hole cut out for Ingram's MX15
- MX15 - UL Type 4X, 15 watt, 120 VAC light*
- Includes all necessary hardware except mounting hardware for box.

VMX25FC
Kit includes:
- UL Type 4X 4x4x2" box with external mounting feet
- Hole cut out for Ingram's MX25F
- MX25F - UL Type 4X, 25 watt, 120 VAC light with SSF150W flasher*
- SSF150W - UL Recognized , 120 VAC, 75 Flashes per min. solid state flasher
- Includes all necessary hardware except mounting hardware for box.

*Lens available in Red and Amber.

042208

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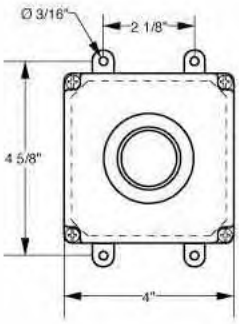
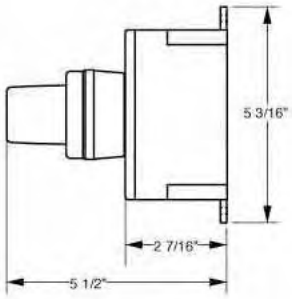
Visual Alarm





VMS120C
Kit includes:
- UL Type 4X 4x4x2" box with external mounting feet
- Hole cut out for Ingram's MS120A
- MS120A - UL Type 4X, 120 VAC strobe light*
- Includes all necessary hardware except mounting hardware for box.

This product is available with green lens only.

042508

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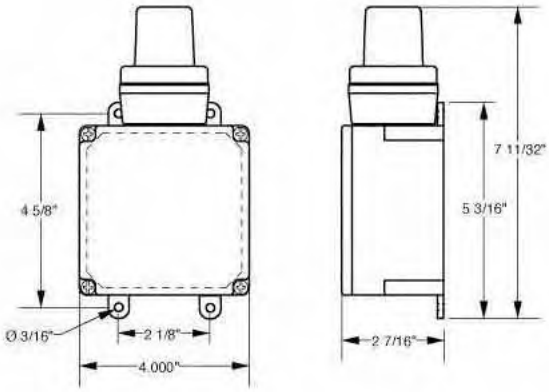
Visual Alarm



VMS120T
Kit includes:
- UL Type 4X 4x4x2" box with external mounting feet
- Hole cut out for Ingram's MS120A
- MS120A - UL Type 4X, 120 VAC strobe light*
- Includes all necessary hardware except mounting hardware for box.

Available in green lens only.

042808

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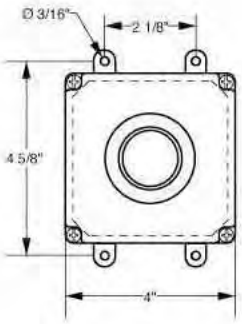
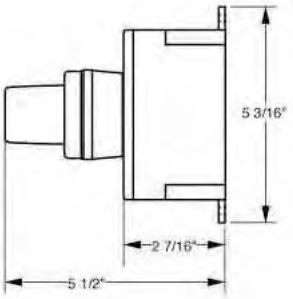
Visual Alarm





VSB120C
Kit includes:
- UL Type 4X 4"x4"x2" box with external mounting feet
- Hole cut out for Ingram's SB120AC
- SB120AC - UL Type 4X 120VAC LED Light Can be set for continuous light or flash
- Includes all necessary hardware except mounting hardware for box

VSB1224C
Kit includes:
- UL Type 4X 4"x4"x2" box with external mounting feet
- Hole cut out for Ingram's SB1224AD
- SB1224AD - UL Type 4X 12/24V AC or DC LED light. Can be set for continuous light or flash
- Includes all necessary hardware except mounting hardware for box

Available as a kit or assembled.
Comes with red, amber, or green lens.

050608

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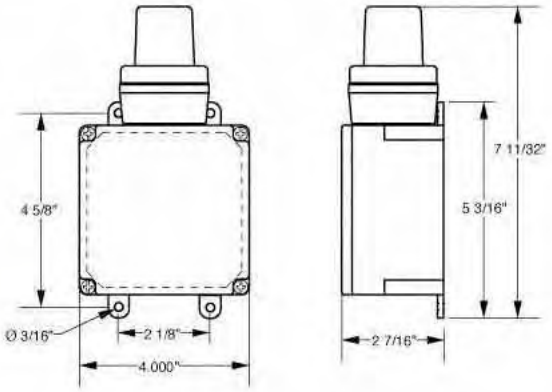
Visual Alarm



VSB120T
Kit includes:
- UL Type 4X 4"x4"x2" box with external mounting feet
- Holes cut out for Ingram's SB120AC
- SB120AC - UL Type 4X, 120VAC LED light
- Includes all necessary hardware except mounting hardware for box

VSB1224T
Kit includes:
- UL Type 4X 4"x4"x2" box with external mounting feet
- Holes cut out for Ingram's SB1224AD
- SB1224AD - UL Type 4X, 12/24V AC or DC LED light
- Includes all necessary hardware except mounting hardware for box

Available as a kit or assembled.
Comes with red, amber, or green lens.

050608

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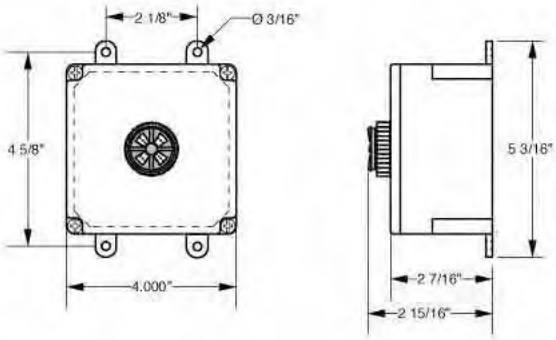
Audible Alarm



APW120C
Kit includes:
- UL Type 4X 4x4x2" box with external mounting feet
- Hole cut out for Ingram's PW120A
- PW120A- UL Type 4X, 120 VAC piezo warbler *
- Includes all necessary hardware except mounting hardware for box.

APW12C
Kit includes:
- UL Type 4X 4x4x2" box with external mounting feet
- Hole cut out for Ingram's PW12D
- PW12D- UL Type 4X, 12 VDC piezo warbler *
- Includes all necessary hardware except mounting hardware for box.

APW24C
Kit includes:
- UL Type 4X 4x4x2" box with external mounting feet
- Hole cut out for Ingram's PW24D
- PW24D- UL Type 4X, 24 VDC piezo warbler *
- Includes all necessary hardware except mounting hardware for box.

*Warbler available in Red or Black

042908

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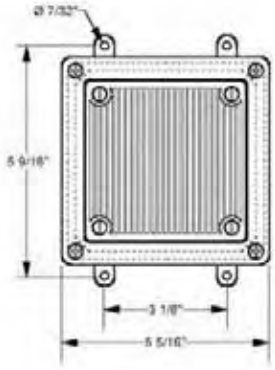
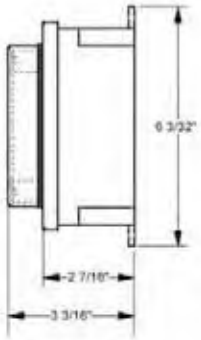
Audible Alarm





AS115AC
Kit includes:
- UL Type 4X 5x5x2" box with external mounting feet
- **Pre-drilled hole for AH115A8R or G**
- AH115A8R and AH115A8G - UL Type 4X, 120 VAC Sounder*
- Includes all necessary hardware except mounting hardware for box.

AS1224DC
Kit includes:
- UL Type 4X 5x5x2" box with external mounting feet
- **Pre-drilled hole for AH1224D8R or G**
- AH1224D8R and AH1224D8G - UL Type 4X 12 or 24 VDC Horn*
- Includes all necessary hardware except mounting hardware for box.

* Available in Red or Gray

051508

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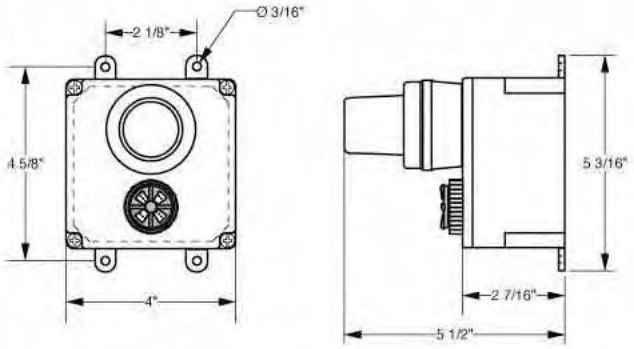
Audible/Visual Alarm



AVPWMS120C
Kit includes:
- UL Type 4X 4x4x2" box with external mounting feet
- Hole cut out for Ingram's PW120A and MS120A
- PW120A- UL Type 4X, 120 VAC piezo warbler **
- MS120A - UL Type 4x, 120 VAC strobe light *
- Includes all necessary hardware except mounting hardware for box.

*Lens available in Red, Blue, Green, Amber, or clear. Please specify color at time of order. If no color is specified Red is standard.

** Warbler available in Red or Black.

043008

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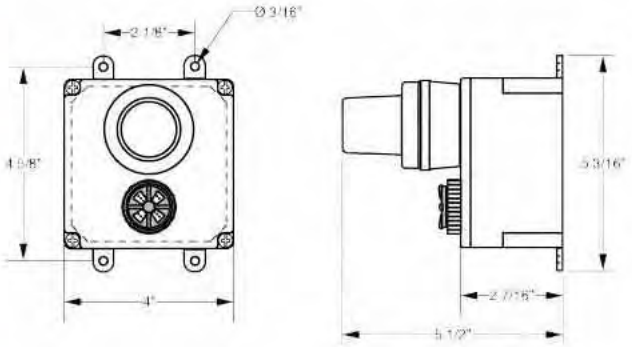
Audible/Visual Alarm



AVPWSB120C

Kit includes:
- UL type 4X 4"x4"x2" box with external mounting feet
- Holes cut out for Ingram's PW120A and SB120AC
- PW120A - UL Type 4X, 120VAC piezo warbler**
- SB120AC - UL Type 4X. 120 VAC Sunburst LED light*
- Includes all necessary hardware except mounting hardware for box.

AVPWSB1224C

Kit includes:
- UL type 4X 4"x4"x2" box with external mounting feet
- Holes cut out for Ingram's PW12D/PW24D and SB1224AD
- PW12/24 - UL Type 4X. 12 or 24 V piezo warbler**
- SB1224AD - UL Type 4X. 12/24 V Sunburst LED light*
- Includes all necessary hardware except mounting hardware for box.

*Lens available in red, amber, and green.
**Piezo warbler available in red or black.

050708

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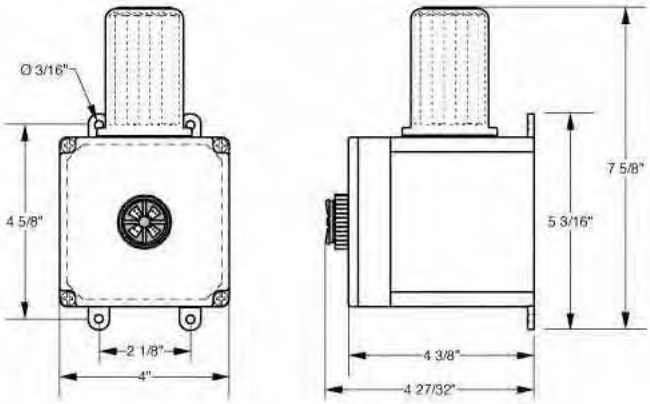
Audible/Visual Alarm



AVPW120CMX15T
Kit includes:
- UL Type 4X 4x4x4" box with external mounting feet
- Hole cut out for Ingram's PW120A and MX15
- PW120A - UL Type 4X, 120 VAC piezo warbler**
- MX15 - UL Type 4X, 15 watt, 120 VAC light*
- Includes all necessary hardware except mounting hardware for box.

AVPW120CMX25FT
Kit includes:
- UL Type 4X 4x4x4" box with external mounting feet
- Hole cut out for Ingram's PW120A and MX25F
- PW120A- UL Type 4X, 120 VAC piezo warbler**
- MX25F - UL Type 4X, 25 watt, 120 VAC light with SSF150W flahser*
- SSF150W - UL Recognized , 120 VAC, 75 Flashes per min. solid state flasher
- Includes all necessary hardware except mounting hardware for box.

*Lens available in Red and Amber. Please specify color at time of order. If no color is specified Red is standard.

**Warbler available in Red or Black

043008

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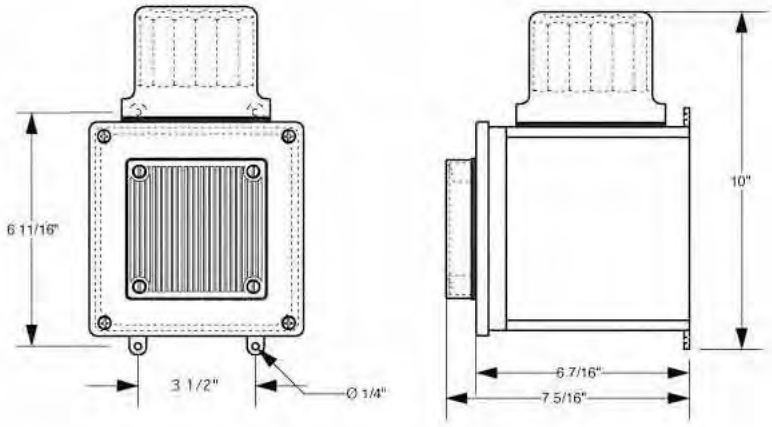
Audible/Visual Alarm



AS115CLX25S
Kit includes:
- UL Type 4X 6x6x6" box with external mounting feet
- Hole cut out for Ingram's AH1158R and LX25
- AH115A8R- UL Type 4X, 120 VAC Sounder**
- LX25 - UL Type 4x, 25 watt, 120 VAC light*
- Includes all necessary hardware except mounting hardware for box.

AS115CLX40FS
Kit includes:
- UL Type 4X 6x6x6" box with external mounting feet
- Hole cut out for Ingram's AH1158R and LX40F
- AH115A8R- UL Type 4X, 120 VAC Sounder**
- LX40F - UL Type 4x, 40 watt, 120 VAC light with SSF150W flasher*
- SSF150W - UL Recognized , 120 VAC, 75 Flashes per min. solid state flasher
- Includes all necessary mounting hardware except mounting hardware for box.

*Lens available in Red, Blue, Green, Amber, or clear. Please specify color at time of order. If no color is specified Red is standard.

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Spa Alert

Part No: AVPW120CXFTRP

The Ingram Spa Alert uses a super bright LED and 95 dB audible piezo alarm to alert you of a problem. The unit is equipped with a two position key operated switch that can be used to silence the alarm after it has been activated. The Spa Alarm is Nema 4X rated to withstand harsh outdoor conditions. Nema 4X means the unit is water tight and hose down proof.

Alarm Includes

- 1 ea PW120A- piezo buzzer (red)
- 1 ea SB120AC - LED (red)
- 1 ea Silence Switch - 2 position key operated selector switch
- Mounting hardware for box not included

Features

- UL Type 4X box with external mounting feet
- UL Type 4X super bright LED (E121431)
- UL Type 4X piezo buzzer (E175530)
- LED provides 360 degree visibility
- LED - 2 operation modes: steady on and flash
- Piezo - solid state construction for reliability
- Piezo - low power consumption
- Piezo has a distinctive tone that cuts through ambient noise

Technical Specifications

LED

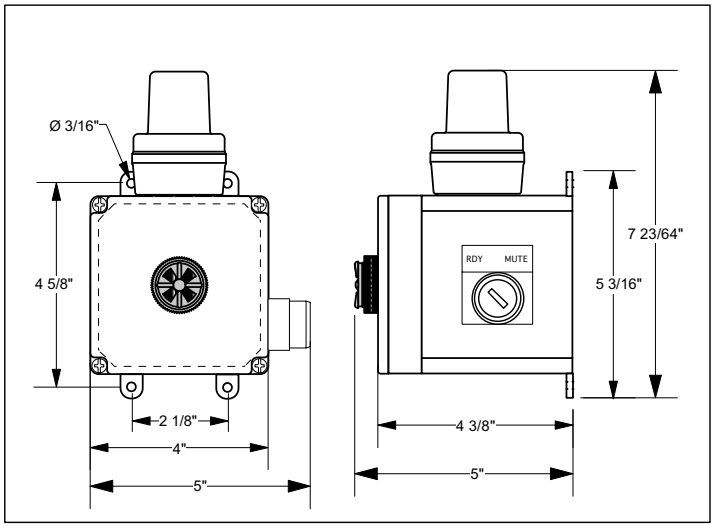
- Part No. SB120AC (red)
- Voltage: 120VAC
- Current Draw: 150mA
- Flashes per Minute: 60

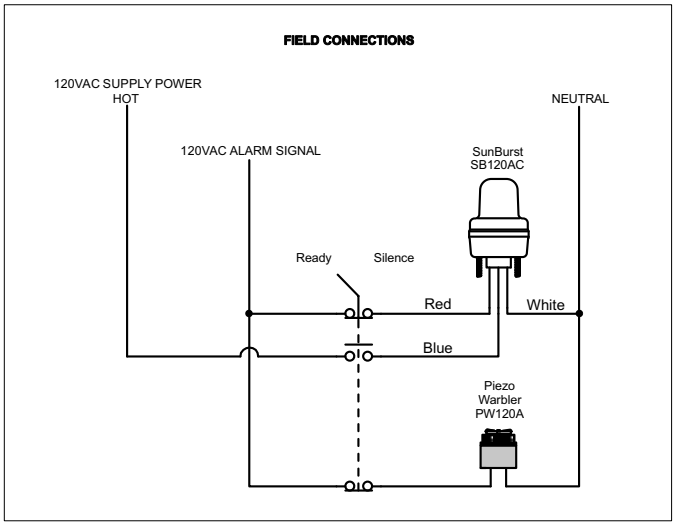
Piezo

- Part No. PW120A (red)
- Voltage: 120VAC
- Current Draw: 40mA
- Sound Output: 80dB min @ 2 feet
- Resonant frequency 2.9 ± 0.5kHz

Unit

- Part No. AVPW120CXFTRP
- Total Current: 190mA





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Counter

Part No. :MC-01

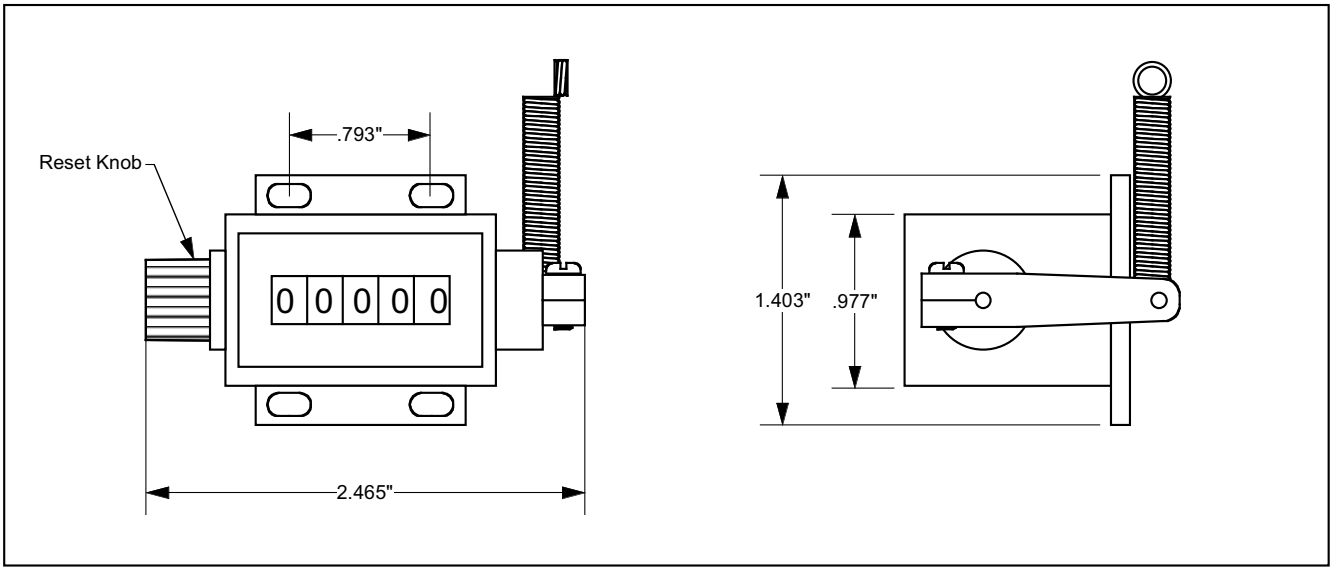
Heavy duty industrial grade mountable counter. Counts to 99999 with easy reset. Spring loaded actuator arm.

Features

- 5 digit display
- Reliable return to zero
- Long service life
- Wide temperature range

Technical Specifications

- Service life: 1 million
- Service temperature: -10°C - +65°C
- Return to zero mode: Wind to reset



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Hand Held Counter

Part No. :HHC4

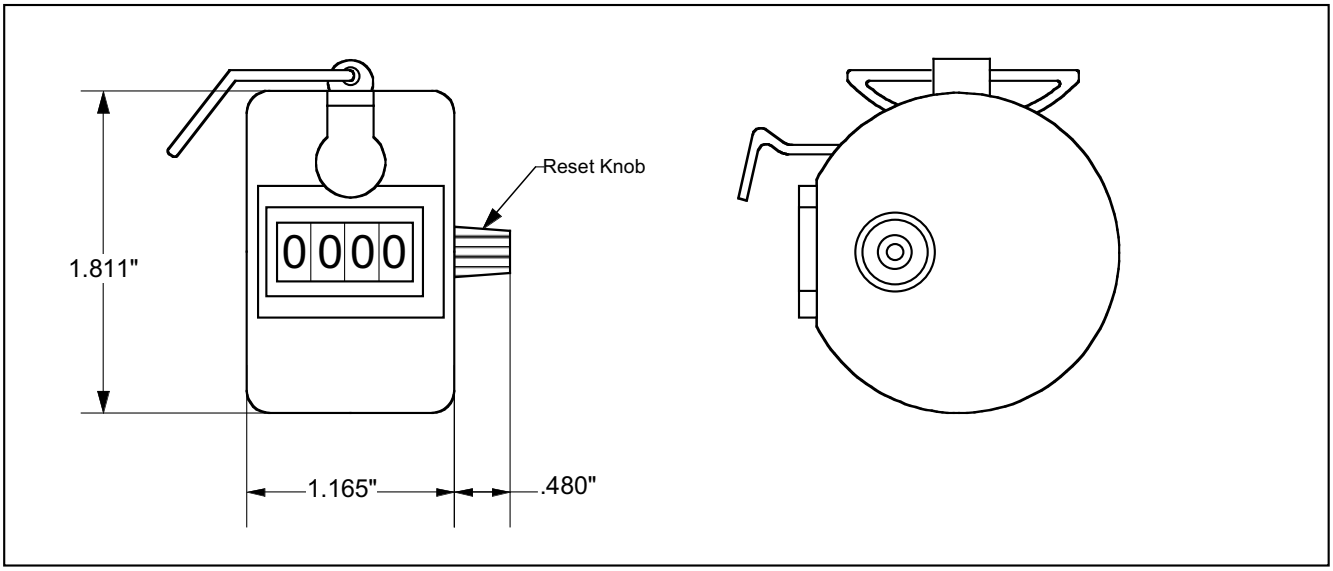
Rugged contruction for industrial or outdoor sports tally. counts to 9999 with easy reset function.

Features

- 4 digit display
- Reliable return to zero
- Long service life
- Wide temperature range
- Light weight
- Chrom plated

Technical Specifications

- Service life: 1 million
- Service temperature: -10°C - +65°C
- Return to zero mode: Wind to reset



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GFCI Safety Outlet

Part No. EH-04

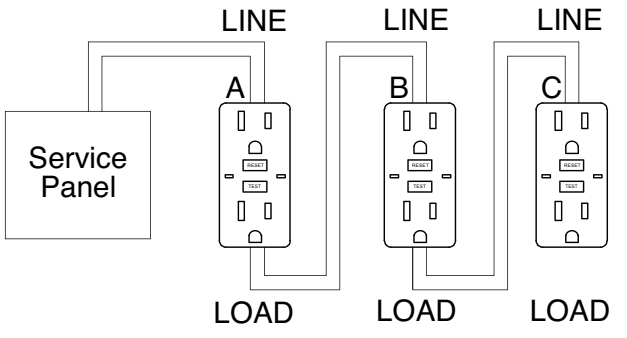
GFCI (Ground Fault Circuit Interrupter) receptacles can prevent serious injury by monitoring the balance of current flow in a circuit. When a ground fault is detected, such as when a person touches a defective appliance that is "hot" due to defective wiring or other problem, the GFCI will immediately detect the condition and cut off electric power to the outlet. The device can then be reset, providing continuous protection against fatal electrical shock. The National Electrical Code now requires Ground Fault protection for outlets servicing countertops, wet/damp locations and all new residential construction.

Features

- Duplex receptacle
- Reset button restores outlet power
- Test button for monthly testing
- Fail safe operation, will not operate when mis-wired
- Improved resistance to surge and corrosion.
- Wires can be installed from the side or back.
- LED indicators:
  green indicates proper operation
  red indicates end-of-life
- Comes with wall cover plate, mounting hardware and complete installation and troubleshooting instructions.

Technical Specifications

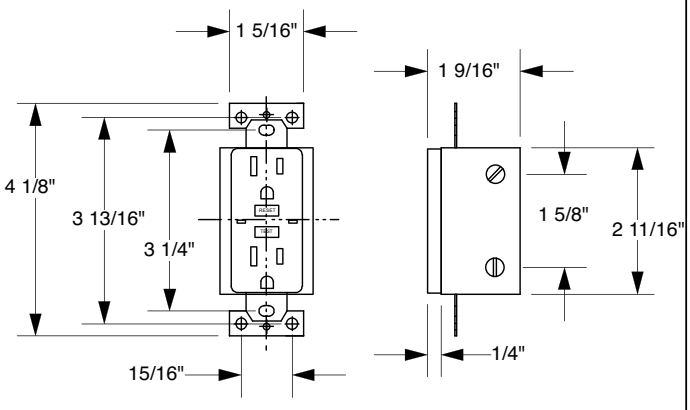
- Voltage: 120VAC - 60Hz
- Current: Up to 15 Amps
- UL Listed - E253345
- Three prong outlet accepts 2 or 3 prong 15A plugs
- Provides protection to downstream "load" receptacles
- See reverse side for handy troubleshooting tips.



A single GFCI receptacle installed in location A will provide protection for receptacles A, B and C.

Installed in location B - it will protect B and C.

Installed in location C - only C will be protected.



Dimensions

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Troubleshooting Chart

Symptom

Cause ↓	Pushing Test Button Does Not Pop Out Reset Button.	Reset won't stay in when pushed.	Reset button is out. Outlet still functions.	Reset button is in. Outlet does not function.	Reset button pops out when device plugged into socket is turned on.
Ground fault downstream.	–	Yes	–	–	Yes
Line and load reversed.	–	Since 2003	Yes	–	–
Other miswiring of GFCI	–	Yes	–	Yes	Yes
120 Volts not reaching GFCI	Yes	Since 2003	–	Yes	–
Reset button not pushed in well enough	Yes	Yes	–	–	–
Defective GFCI	Yes	Rare	–	Yes	–

GFCI Safety Outlet

Part No. EH-05

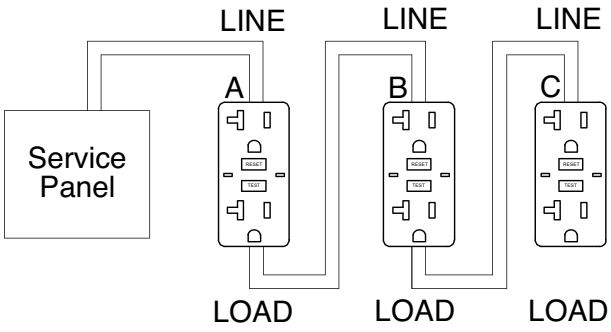
GFCI (Ground Fault Circuit Interrupter) receptacles can prevent serious injury by monitoring the balance of current flow in a circuit. When a ground fault is detected, such as when a person touches a defective appliance that is "hot" due to defective wiring or other problem, the GFCI will immediately detect the condition and cut off electric power to the outlet. The device can then be reset, providing continuous protection against fatal electrical shock. The National Electrical Code now requires Ground Fault protection for outlets servicing countertops, wet/damp locations and all new residential construction.

Features

- Duplex receptacle
- Reset button restores outlet power
- Test button for monthly testing
- Fail safe operation, will not operate when mis-wired
- Improved resistance to surge and corrosion.
- Wires can be installed from the side or back.
- Two LED indicators:
  one green to indicate proper operation
  one red to indicate end-of-life
- Comes with wall cover plate, mounting hardware and complete installation and troubleshooting instructions.

Technical Specifications

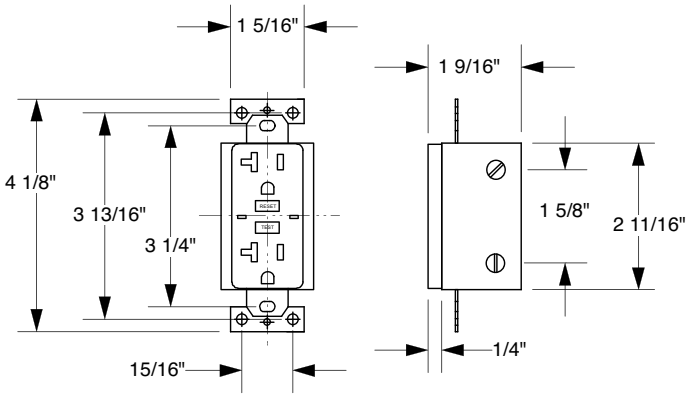
- Voltage: 120VAC - 60Hz
- Current: Up to 20 Amps
- UL Listed - E253345
- Three prong outlet accepts 2 or 3 prong 15A & 20 A plugs
- Provides protection to downstream "load" receptacles
- See reverse side for handy troubleshooting tips.



A single GFCI receptacle installed in location A will provide protection for receptacles A, B and C.

Installed in location B - it will protect B and C.

Installed in location C - only C will be protected.



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